Water Resources Data
South Dakota
Water Year 1984

COMPLETED

277

ORIGINAL

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT SD-84-1

Prepared in cooperation with the State of South Dakota
and with other agencies

CALENDAR FOR WATER YEAR 1984

1983

OCTOBER

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U.S. DEPARTMENT OF THE INTERIOR
March 3, 1849

Water Resources Data South Dakota

Water Year 1984

by E.B. Hoffman, R.D. Benson, and G.R. Wisnieski

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT SD-84-1
Prepared in cooperation with the State of South Dakota
and with other agencies

I

UNITED STATES DEPARTMENT OF THE INTERIOR

DONALD PAUL HODEL, Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

For information on the water program in South Dakota write to
District Chief, Water Resources Division
U.S. Geological Survey
Room 317, Federal Building
200 4th St. S.W.
Huron, South Dakota 57350

1985

II

PREFACE

This report is one of a series issued by state. General direction for the series is by Phillip Cohen, Chief Hydrologist, U.S. Geological Survey, James F. Daniel, Assistant Chief Hydrologist for Scientific Publications and Data Management, and Alfred Clebsch, Jr., Regional Hydrologist, Central Region.

This report was prepared by personnel of the South Dakota District of the Water Resources Division of the U.S. Geological Survey under the supervision of Richard E. Fidler, District Chief, and John R. Little, Chief, Hydrologic Data Collection and Analysis Section. Other South Dakota District personnel who contributed significantly to the collecting, processing and tabulating the data, and typing the manuscript were: Darwin W. Heyd, Marvin D. Stevens, Bruce E. Baker, Herbert J. Bandelman, Michael J. Burr, Richard M. Crowfoot, Ella M. Decker, Mark E. Freese, Dan G. Hern, Terry K. Lockner, Debra K. Matthews, Darwin L. Rahder, Craig B. Solberg, Tamara J. Wieters, Douglas R. Winter, and Verlyn J. Wipf. It was prepared in cooperation with the State of South Dakota and with other agencies.

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Water Resources Data for the 1984 water year for South Dakota consists of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels in wells. This report contains discharge records for 105 gaging stations, stage and contents for 13 lakes and reservoirs; water quality for 17 gaging stations; and water levels for 37 observation wells. Additional water data were collected at various sites, not part of the systematic data-collection program, and are published as miscellaneous measurements and analyses. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State and Federal agencies in South Dakota.

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INTRODUCTION

Water resources data for the 1984 water year for South Dakota consist of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels of ground water. This report contains discharge records for 105 gaging stations; stage and contents for 13 lakes and reservoirs; water quality for 17 gaging stations; and water levels for 37 observation wells. Additional water data were collected at various sites, not involved in the systematic data collection program, and are published as miscellaneous measurements. These data represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in South Dakota.

Records of discharge or stage of streams, and contents or stage of lakes and reservoirs were first published in a series of U.S. Geological Survey water-supply papers entitled "Surface Water Supply of the United States." Through September 30, 1960, these water-supply papers were in an annual series and then in a 5-year series for 1961-65 and 1966-70. Records of chemical quality, water temperatures, and suspended sediment were published from 1941 to 1970 in an annual series of water-supply papers entitled "Quality of Surface Waters of the United States." Records of ground-water levels were published from 1935 to 1974 in a series of water-supply papers entitled "Ground-Water Levels in the United States." Water-supply papers may be consulted in the libraries of the principal cities in the United States or may be purchased from Branch of Distribution, U.S. Geological Survey, 604 South Pickett Street, Alexandria, VA 22304.

For water years 1961 through 1970, streamflow data were released by the Geological Survey in annual reports on a State-boundary basis. Water-quality records for water years 1964 through 1970 were similarly released either in separate reports or in conjunction with streamflow records. Beginning with the 1971 water year, water data for streamflow, water quality, and ground water are published as an official Survey report on a State-boundary basis. These official Survey reports carry an identification number consisting of the two letter State abbreviation, the last two digits of the water year, and the volume number. For example, this report is identified as "U.S. Geological Survey Water-Data Report SD-82-1." Water-Data reports are for sale by the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22161.

COOPERATION

The U.S. Geological Survey and organizations of the State of South Dakota have had cooperative agreements for the systematic collection of surface-water records since 1914, for ground-water levels since 1935, and for water-quality records since 1947. Organizations that assisted in collecting data through cooperative agreement with the Survey are:

Department of Water and Natural Resources, W. R. Neufeld, secretary.

Department of Transportation, James R. Myers, secretary.

East Dakota Conservancy Sub-District, J. L. Siegel, manager-engineer.

Black Hills Conservancy Sub-District, Ed Glassgow, manager-treasurer.

City of Watertown, J. O. Babcock, city engineer.

Assistance in the form of funds or services was given by the Corps of Engineers, U.S. Army; the Bureau of Indian Affairs, U.S. Department of Interior; the Bureau of Reclamation, U.S. Department of Interior; and the Missouri River basin development program for gaging and water-quality stations.

Organizations that supplied data are acknowledged in station descriptions.

SUMMARY OF HYDROLOGIC CONDITIONS

by Rick D. Benson

Precipitation was greater than normal throughout South Dakota during the first and third quarters of water year 1984. During the first quarter, precipitation ranged from 113 percent of normal in the northeast part of the State to about 170 percent of normal in the Black Hills and east central part of the State. During the third quarter, precipitation ranged from 115 percent of normal in the southwest and south-central parts to 204 percent of normal in the southeast part. During the second quarter, precipitation was less than normal in about one-half the State, ranging from 53 percent of normal in the northwest and southwest parts to 134 percent of normal in the northeast part. Except for the east-central and south-central parts, precipitation was less than normal throughout the State during the fourth quarter. Precipitation in the southeast part was 11.81 inches greater than normal at the end of the third quarter and ended the year at 8.86 inches greater than normal--the most for the State. This precipitation caused widespread flooding in the James, Vermillion, and Big Sioux River basins in June 1984.

Precipitation data from published reports of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, for the nine divisions in South Dakota are shown in table 1. The cumulative precipitation and cumulative departures from normal are shown for the end of each quarter.

Table 1.-- Cumulative precipitation and departures from normal[1], in inches

National Weather Service Division[2]	October - December		October - March		October - June		October - September	
	Precipi-tation	Departure from normal	Precipi-tation	Departure from normal	Precipi-tation	Departure from normal	Precipi-tation	Departure from normal
Northwest	2.97	+1.29	3.75	+0.60	13.56	+2.94	17.84	+2.56
North Central	2.80	+ .80	4.58	+ .89	14.42	+2.64	18.06	+ .73
Northeast	2.80	+ .32	5.84	+1.39	16.77	+3.70	22.38	+2.78
Black Hills	4.55	+1.88	6.15	+ .71	17.72	+2.44	23.49	+2.19
Southwest	3.36	+1.60	4.32	+ .74	13.60	+1.[illegible]6	17.72	+1.10
Central	3.03	+1.05	4.69	+ .94	15.65	+4.17	21.39	+4.49
East Central	4.66	+1.88	7.32	+2.28	21.36	+7.48	27.13	+6.23
South Central	3.86	+1.53	6.06	+1.46	16.57	+2.83	23.62	+3.47
Southeast	4.60	+1.65	7.60	+2.04	26.74	+11.81	31.93	+8.86

[1] Based on data from 1951 to 1980.
[2] Shown in figure 1.

Surface Water

The five streamflow gaging stations shown in figure 1 have drainage areas within South Dakota representing about 45 percent of the total area of the State. Streamflow during water year 1984 was significantly greater than normal for three of the five stations. The flow of Castle Creek above Deerfield Reservoir near Hill City was about 160 percent of normal and the flow of the James River near Scotland and of the Big Sioux River at Akron, Iowa was more than 400 percent of normal. The flow of the Moreau River near Whitehorse was 97 percent of normal and the flow of the White River near Oacoma was 82 percent of normal.

The graphs of discharge in figure 1 generally follow the precipitation trends shown in table 1. The greater-than-normal precipitation received during the first three quarters of the water year in the southeast, east-central, and northeast regions (table 1) resulted in greater-than-normal streamflow in the James River near Scotland and in the Big Sioux River at Akron during the entire water year (fig. 1). Precipitation in the southeast region was 9.77 inches, or 204 percent, greater than normal during the third quarter (April-June), resulting in widespread flooding in the James, Vermillion, and Big Sioux River basins (discussed in the following paragraph). Castle Creek, a mountain stream in the Black Hills, has a small range in discharge and a subdued response to precipitation because it derives most of its flow from the Madison aquifer. Maximum and minimum discharges for the 1984 water year are compared to long-term maximums and minimums in tables 2 and 3.

Greater-than-average snowfall was recorded in southeastern South Dakota during the winter of 1983-84. Sioux Falls received 75 inches of snowfall--the third snowiest winter on record. This snow caused severe snowmelt flooding beginning about March 20 and, after the fourth wettest April on record (at Sioux Falls), caused near-record flooding on the lower James, Vermillion, and Big Sioux Rivers in April. June 1984 was the wettest June on record in southeastern South Dakota, and was the sixth wettest month on record at Sioux Falls. Successive weather systems repeatedly caused intense rains throughout most of central, east-central, and southeastern South Dakota, resulting in saturated soil conditions which resulted in widespread flooding. The peak discharge that occurred on the James River near Scotland (29,400 cubic feet per second), is almost twice the previously recorded peak (table 2).

Twenty-three counties in east-central and southeastern South Dakota were designated as disaster areas by the U.S. Farmer's Home Administration on July 3, 1984. The Governor requested a Major Disaster Declaration and on July 19, 1984, the President made a Declaration under Public Law 93-288 for Public Assistance only to fifteen of these counties. A sixteenth county was later added to the list of eligible counties. The U.S. Department of Agriculture estimated that about 2.04 million acres of cropland were flooded. Damage estimates were placed at $300 million, most of which were to the agricultural sector (Federal Emergency Management Agency, 1984).

Combined storage in the four Missouri River main-stem reservoirs (Lakes Oahe, Sharpe, Francis Case, and Lewis and Clark) was 25,795,000 acre-feet at the end of the water year, a decrease of 419,000 acre-feet from the same date a year ago.

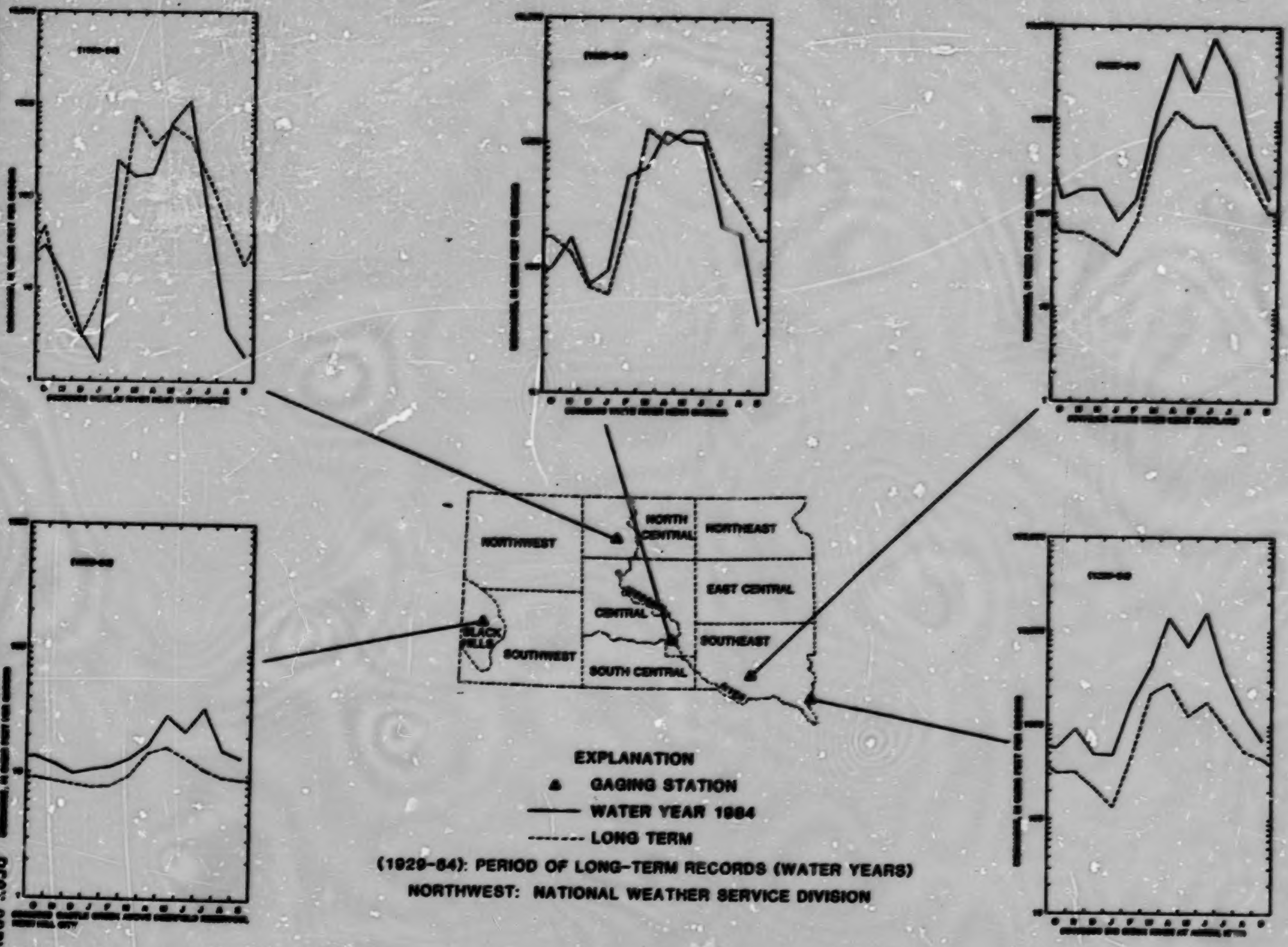

Figure 1.--Comparison of 1984 monthly mean to long-term monthly mean discharges.

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Table 2.--Comparison of current-year maximum discharge with maximum for long-term periods

[ft³/s, cubic feet per second]

Gaging-station number and name	Long-term period used (water years)	Peak discharges					
		1984 Water year			Long-term period		
		Peak (ft³/s)	Date	Return interval (years)	Peak (ft³/s)	Date	Return interval (years) 1/
06360500 Moreau River near Whitehorse	1955-84	3,780	6-17-84	<2	27,700	5-24-82	25
06409000 Castle Creek above Deerfield Reservoir, near Hill City	1948-84	122	7-16-84	5	1,120	5-22-52	>100
06452000 White River near Oacoma	1929-84	6,290	6-14-84	<2	51,900	3-30-52	>100
06478500 James River near Scotland	1929-84	29,400	6-23-84	>100	15,200	4- 3-62	33
06485500 Big Sioux River at Akron, Iowa	1929-84	52,200	6-23-84	25	80,800	4- 9-69	>100

1/ Long-term period through water year 1984.

Table 3.--Comparison of current-year minimum discharge with minimum for long-term periods

[ft³/s, cubic feet per second]

Gaging-station number and name	Long-term period used (water years)	Minimum discharges					
		1984 Water year 1/			Long-term period		
		1-day (ft³/s)	Date	Average 7-day (ft³/s)	1-day (ft³/s)	Date	7-day, 10-year return interval (years)
06360500 Moreau River near Whitehorse	1955-84	0.0	several days	0.0	0	many days	Not determined
06409000 Castle Creek above Deerfield Reservoir, near Hill City	1948-84	8.0	12-21 thru 24-83	8.1	2.0	several days	4.0
06452000 White River near Oacoma	1929-84	54	9-30-83	57	0	many days	3.5
06478500 James River near Scotland	1929-84	60	1-27 thru 28-84	62	0	many days	1.5
06485500 Big Sioux River at Akron, Iowa	1929-84	430	12- 6-83	447	4.0	1-17-77	17.0

1/ Low-flow water year is April 1 to March 31.

Water Quality

Chemical quality of surface water in South Dakota varies considerably across the State. Mean monthly dissolved-solids concentrations for the period of record are compared with samples collected during the 1984 water year in figure 2. Of the 12 stations in figure 2, all are National stream-quality accounting network (NASQAN) stations except for two (Castle Creek above Deerfield Reservoir near Hill City and Little Vermillion River near Salem), which are hydrologic bench-mark stations. Dissolved-solids concentrations ranged from as little as 233 mg/L at the Castle Creek station to as much as 3,370 mg/L at the Belle Fourche near Elm Springs station.

To determine whether significant differences in dissolved-solids concentrations occurred between the 1984 water year and the period of record, a statistical test called the t-test was used. Results of the t-tests for the 12 stations, shown in table 4, indicate that no statistically significant differences in the mean dissolved-solids concentrations occurred at any of the stations during water year 1984.

Ground Water

Water levels in wells, discharge of springs and wells, and water-quality data are key characteristics in monitoring ground-water trends; however, these hydrologic characteristics need to be integrated with other measurements and ground-water-system studies in order to have the fullest meaning and usefulness. In South Dakota, the U.S. Geological Survey regularly monitors a number of observation wells. Other wells, which are known as project wells, are used for specific (generally short-term) studies and, although they are not part of the observation-well program, data obtained from them also are made available. The hydrographs in figure 3 are from seven of the wells in the network. Water levels, for the most part, were slightly higher in 1984 than in 1983 except in areas where ground-water development has resulted in a water-level decline such as in the Lincoln County well.

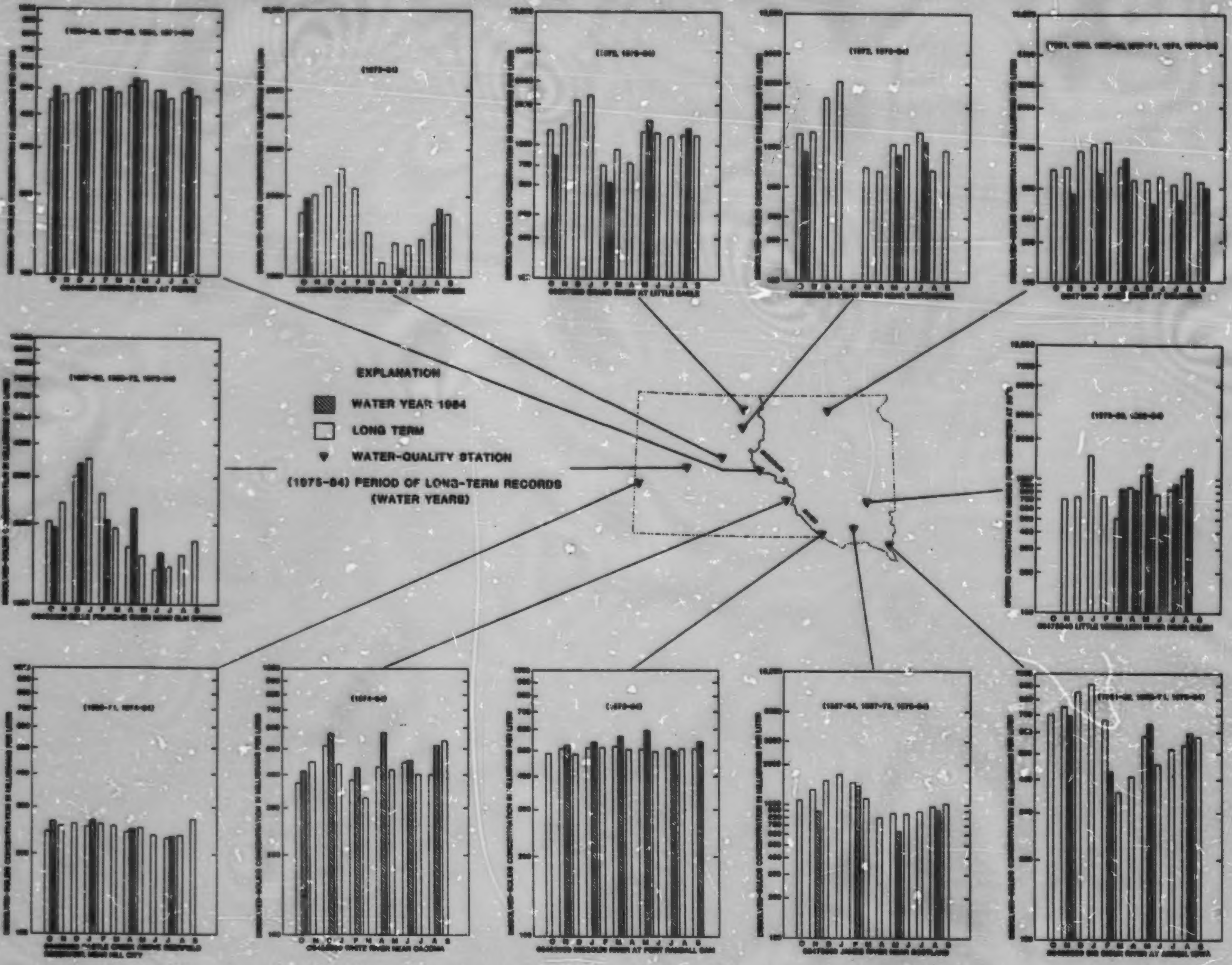

Figure 2.--Comparison of 1984 monthly dissolved-solids concentrations or specific conductance to long-term average monthly values.

6

Table 4.--Results of t-tests comparing mean dissolved-solids concentrations for the 1984 water year with means for the period of record at selected water-quality stations

Water-quality station number and name	Dissolved-solids concentration1/						Period used (water years)	Prob > $\|T\|$ 2/	Significant difference between means at 95-percent confidence level
	1984 water year			Period of record					
	Number of values n_1	Mean X_1	Standard deviation SD_1	Number of values n_2	Mean X_2	Standard deviation SD_2			
06357800 Grand River at Little Eagle	4	1,051	457	87	1,289	581	1972, 1975-84	3/ 0.42	No.
06360500 Moreau River near Whitehorse	3	956	109	35	1,239	775	1972, 1978-84	.54	No.
06409000 Castle Creek above Deerfeld Reservoir, near Hill City	4	254	16	165	250	29	1965-71, 1974-84	.79	No.
06438000 Belle Fourche River near Elm Springs	5	2,266	676	193	2,007	882	1957-62, 1969-73, 1975-84	.52	No.
06439300 Cheyenne River at Cherry Creek	3	1,607	480	119	1,675	592	1972-84	.84	No.
06440000 Missouri River at Pierre	6	511	19	191	492	65	1954-55, 1957-58, 1964, 1971-84	.47	No.
06452000 White River near Oacoma	6	489	71	104	425	138	1974-84	.27	No.
06453000 Missouri River at Fort Randall Dam	6	541	34	99	506	42	1975-84	.05	No.
06471000 James River at Columbia	6	538	175	169	691	285	1951, 1958, 1960-65, 1967-71, 1974, 1979-84	.19	No.
06478500 James River near Scotland	4	952	312	265	1,115	473	1957-64, 1967-73, 1975-84	.49	No.
06478540 Little Vermillion River near Salem	14	784	332	45	4/776	4/369	1978-80, 1982-84	.94	No.
06485500 Big Sioux River at Akron, Iowa	4	590	115	140	604	223	1961-62, 1966-71, 1975-84	.90	No.

1/ Milligrams per liter.
2/ Alpha probability for "t" statistic.
3/ If the null hypothesis ($\bar{X}_1 = \bar{X}_2$) is rejected, there is a 42-percent chance that this conclusion will be in error. Because only a 5-percent chance of error is acceptable, the null hypothesis is accepted. Similar reasoning can be used to evaluate the other stations.
4/ Specific conductance in microsiemens per centimeter at 25° Celsius.

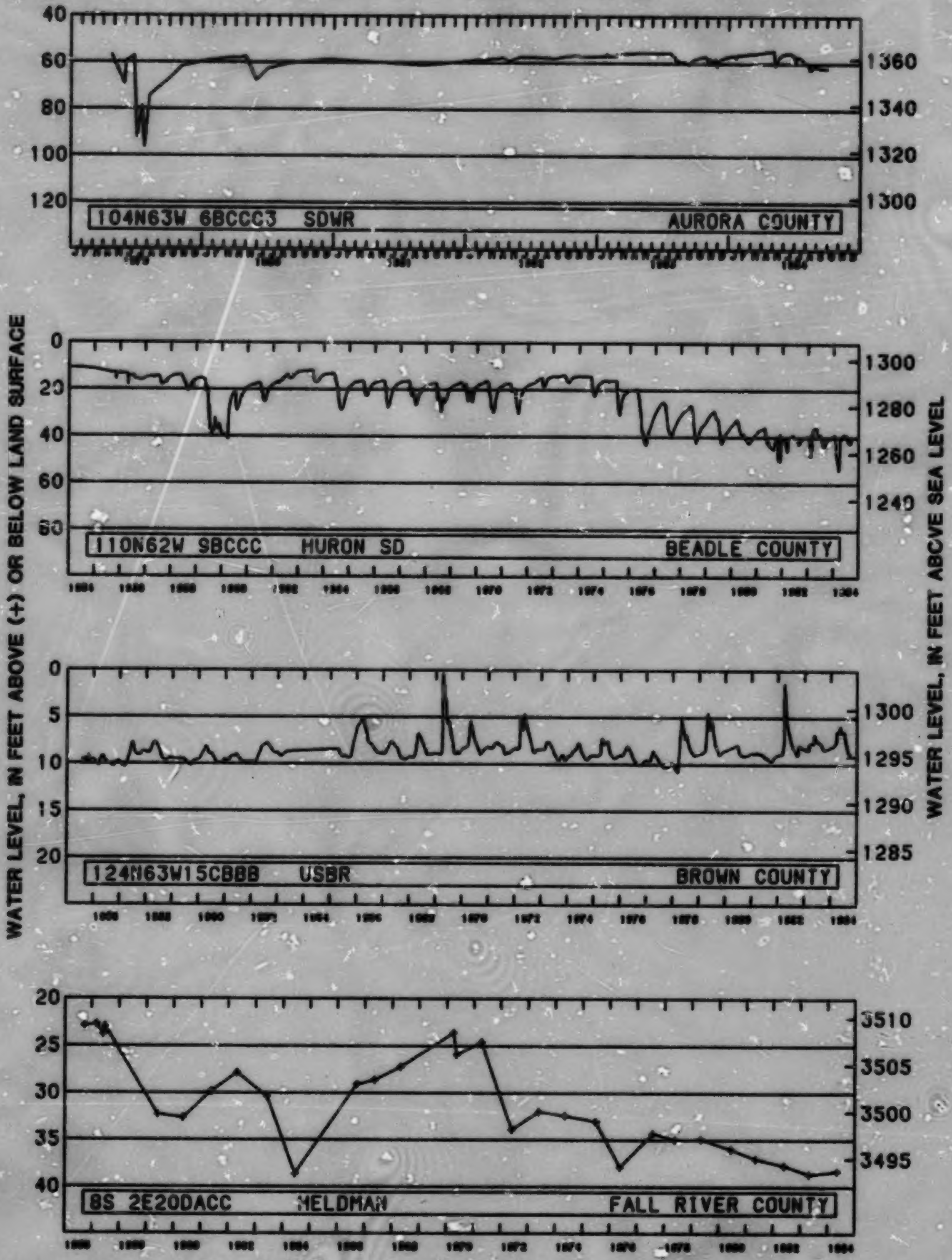

Figure 3.--Water levels from selected observation wells.

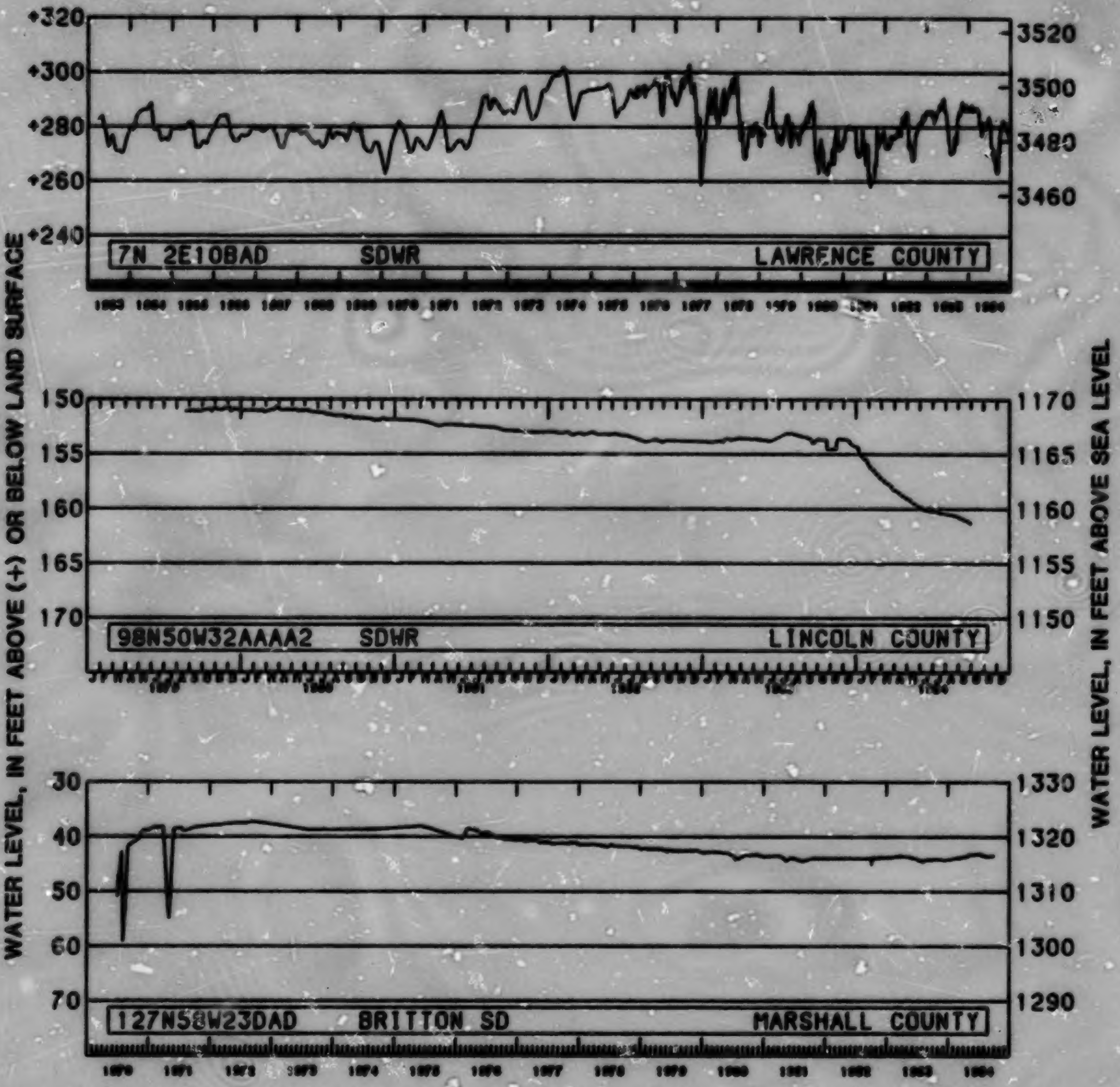

Figure 3.--Water levels from selected observation wells.--Continued

DEFINITION OF TERMS

Terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined below. See also the table for converting English units to International System of units (SI) on the inside of the back cover.

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

Adenosine triphosphate (ATP) is the primary energy donor in cellular life process. Its central role in living cells makes it an excellent indicator of the presence of living material in water. A measure of ATP therefore provides a sensitive and rapid estimate of biomass. ATP is reported in micrograms per liter of the original water sample.

Algae are mostly aquatic single-celled, colonial, or multi-celled plants, containing chlorophyll and lacking roots, stems, and leaves.

Algal growth potential (AGP) is the maximum algal dry weight biomass that can be produced in a natural water sample under standardized laboratory conditions. The growth potential is the algal biomass present at stationary phase and is expressed as milligrams dry weight of algae produced per liter of sample.

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Artesian means confined and is used to describe a well in which the water level stands above the top of the aquifer, tapped by the well. A flowing artesian well is one in which the water level is above the land surface.

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as the organisms which produce colonies within 24 hours when incubated at 35°C ± 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal coliform bacteria are bacteria that are present in the intestines or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms which produce blue colonies within 24 hours when incubated at 44.5°C ± 0.2°C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal streptococcal bacteria are bacteria found also in intestines of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at 35°C ± 1.0°C on M-enterrococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Bed material is the unconsolidated material of which a streambed, lake, pond, reservoir, or estuary bottom is composed.

Biochemical oxygen demand (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by microorganisms, such as bacteria.

Biomass is the amount of living matter present at any given time, expressed as the mass per unit area or volume of habitat.

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500°C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter (g/m^3), and periphyton and benthic organisms in grams per square meter (g/m^2).

Dry mass refers to the mass of residue present after drying in an oven at 60°C for zooplankton and 105°C for periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry mass values are expressed in the same units as ash mass.

Organic mass or volatile mass of the living substance is the difference between the dry mass and ash mass, and represents the actual mass of the living matter. The organic mass is expressed in the same units as for ash mass and dry mass.

Wet mass is the mass of living matter plus contained water.

Bottom material: See Bed material.

Cells/volume refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually milliliters (mL) or liters (L).

Cfs-day is the volume of water represented by flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, about 646,000 gallons or 2,447 cubic meters.

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water, and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with natural water color or with carbonaceous organic pollution from sewage or industrial wastes.

Chlorophyll refers to the green pigments of plants. Chlorophyll a and b are the two most common pigments in plants.

Color unit is produced by one milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

Control structure as used in this report is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of salt water.

Cubic feet per second per square mile (CFSM) is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Cubic foot per second (FT^3/S, ft^3/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to approximately 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

Discharge is the volume of water (or more broadly, volume of fluid plus suspended sediment), that passes a given point within a given period of time.

Mean discharge (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period.

Instantaneous discharge is the discharge at a particular instant of time.

Dissolved refers to the material in a representative water sample which passes through a 0.45 µm membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determination of "dissolved" constituents are made on subsamples of the filtrate.

Diversity index is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

$$\bar{d} = -\sum_{i=1}^{s} \frac{n_i}{n} \log_2 \frac{n_i}{n}$$

Where n_i is the number of individuals per taxon, n is the total number of individuals, and s is the total number of taxa in the sample of the community. Diversity index values range from zero, when all the organisms in the sample are the same, to some positive number, when some or all of the organisms in the sample are different.

Drainage area of a stream at a specific location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the river above the specified point. Figures of drainage area given herein include all closed basins, or noncontribution areas, within the area unless otherwise noted.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

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Gage height (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of hydrologic data are obtained.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate ($CaCO_3$).

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an 8-digit number.

Metamorphic stage refers to the stage of development that an organism exhibits during its transformation from an immature form to an adult form. This developmental process exists for most insects, and the degree of difference from the immature stage to the adult form varies from relatively slight to pronounced, with many intermediates. Examples of metamorphic stages of insects are egg-larva-adult or egg-nymph-adult.

Methylene blue active substance (MBAS) is a measure of apparent detergents. This determination depends on the formation of a blue color when methylene blue dye reacts with synthetic detergent compounds.

Micrograms per gram (µg/g) is a unit expressing the concentration of a chemical element as the mass (micrograms) of the element sorbed per unit mass (gram) of sediment.

Micrograms per liter (UG/L, µg/L) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter (MG/L, mg/L) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represent the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in mg/L, and is based on the mass of sediment per liter of water-sediment mixture.

National Geodetic Vertical Datum of 1929 (NGVD) is a geodetic datum derived from a general adjustment of the first order level nets of both the United States and Canada. It was formerly called "Sea Level Datum of 1929" or "mean sea level" in this series of reports. Although the datum was derived from the average sea level over a period of many years at 26 tide stations along the Atlantic, Gulf of Mexico, and Pacific Coasts, it does not necessarily represent local mean sea level at any particular place.

Organism is any living entity, such as an insect, phytoplankter, or zooplankter.

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meters (m^2), acres, or hectares. Periphyton benthic organisms, and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliliters (mL) or liters (L). Numbers of planktonic organisms can be expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

Parameter code numbers are unique five-digit code numbers assigned to each parameter placed into storage. These codes are assigned by the Environmental Protection Agency and are also used to identify data exchanged among agencies.

Partial-record station is a particular site where limited streamflow and/or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

Particle-size is the diameter, in millimeters (mm), of suspended sediment or bed material determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

Particle-size classification used in this report agrees with recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology.

The classification is as follows:

Classification	Size (mm)	Method of analysis
Clay..........	0.00024 - 0.004	Sedimentation.
Silt..........	.004 - .062	Sedimentation.
Sand..........	.062 - 2.	Sedimentation or sieve.
Gravel........	2.0 - 64.0	Sieve.

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic material is removed and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native water analysis.

Percent composition is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, mass or volume.

Pesticides are chemical compounds used to control undesirable plants and animals. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides. Insecticides and herbicides, which control insects and plants respectively, are the two categories reported.

Picocurie (PC, pCi) is one trillionth (1×10^{12}) of the amount of radioactivity represented by a curie (CI). A curie is the amount of radioactivity that yields 3.7×10^{10} radioactive disintegrations per second. A picocurie yields 2.22 dpm (disintegrations per minute).

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers.

Phytoplankton is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment, and are commonly known as algae.

Blue-green algae are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells/mL of sample.

Green algae have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algal mats or floating "moss" in lakes. Their concentrations are expressed as number of cells/mL of sample.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column, and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

Polychlorinated biphenyls (PCBs) are industrial chemicals that are mixtures of chlorinated biphenyl compounds having various percentages of chlorine. They are similar in structure to organochlorine insecticides.

Primary productivity is a measure of the rate at which new organic matter is formed and accumulated through photosynthetic and chemosynthetic activity of producer organisms (chiefly green plants). The rate of primary production is estimated by measuring the amount of oxygen released (oxygen method) or the amount of carbon assimilated by the plants (carbon method).

Milligrams of carbon per area or volume per unit time [mg C/(m^2·time) for periphyton and macrophytes and mg C/(m^3·time) for phytoplankton] are units for expressing primary productivity. They define the amount of carbon dioxide consumed as measured by radioactive carbon (carbon 14). The carbon 14 method is of greater sensitivity than the oxygen light and dark bottle method, and is preferred for use in unenriched waters. Unit time may be either the hour or day, depending on the incubation period.

Milligrams of oxygen per area or volume per unit time [mg O_2/(m^2·time) for periphyton and macrophytes and mg O_2/(m^3·time) for phytoplankton] are the units for expressing primary productivity. They define production and respiration rates as estimated from changes in the measured dissolved oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period.

Recoverable from bottom material is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of only readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Runoff in inches (IN, in) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L).

Suspended-sediment discharge (tons/day) is the rate at which dry weight of sediment passes a section of a stream or is the quantity of sediment, as measured by dry weight or volume, that passes a section in a given time. It is computed by multiplying discharge time mg/L times 0.0027.

Suspended-sediment load is quantity of suspended sediment passing a section in a specified period.

Total sediment discharge (tons/day) is the sum of the suspended-sediment discharge and the bed-load discharge. It is the total quantity of sediment, as measured by dry weight or volume, that passes a section during a given time.

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Solute is any substance derived from the atmosphere, vegetation, soil, or rocks that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current. It is expressed in micromhos per centimeter at 25°C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in micromhos). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stage-discharge relation is the relation between gage height (stage) and volume of water per unit of time, flowing in a channel.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Substrate is the physical surface upon which an organism lived.

Natural substrates refers to any naturally occurring emersed or submersed solid surface, such as a rock or tree, upon which an organism lived.

Artificial substrate is a device which is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multi-plate samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton collection.

Surface area of a lake is that area outlined on the latest U.S.G.S. topographic map as the boundary of the lake and measured by a planimeter in acres. In localities not covered by topographic maps, the areas are computed from the best maps available at the time planimetered. All areas shown are those for the stage when the planimetered map was made.

Surficial bed material is that part (0.1 to 0.2 ft) of the bed material that is sampled using U.S. Series Bed-Material Samplers.

Suspended (as used in tables of chemical analyses) refers to the amount (concentration) of the total concentration in a water-sediment mixture. The water-sediment mixture is associated with (or sorbed on) that material retained on a 0.45 micrometer filter.

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45 µm membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent.

Suspended, total is the total amount of a given constituent in the part of a representative water-suspended sediment sample that is retained on a 0.45 µm membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total."

Determinations of "suspended, total" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituent.

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchical scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, Hexagenia limbata is the following:

Kingdom	Animal
Phylum	Arthropoda
Class	Insecta
Order	Ephemeroptera
Family	Ephemeridae
Genus	Hexageria
Species	Hexagenia limbata

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

Tons per acre-foot indicates the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration in milligrams per liter by 0.00136.

Tons per day is the quantity of substance in solution or suspension that passes a stream section during a 24-hour day.

Total is the total amount of a given constituent in a representative water-suspended sediment sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total." (Note that the word "total" does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determines all of the constituent in the sample.)

Total in bottom material is the total amount of a given constituent in a representative sample of bottom material. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total in bottom material."

Total load (tons) is the total quantity of any individual constituent, as measured by dry mass or volume, that is dissolved in a specific amount of water (discharge) during a given time. It is computed by multiplying the total discharge, times the mg/L of the constituent, times the factor 0.0027, times the number of days.

Total, recoverable refers to the amount of a given constituent that is in solution after a representative water-suspended sediment sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent percent in the dissolved and suspended phases of the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Turbidity (NTU) is based on the comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension of Formazin polymer under the same conditions.

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

WRD is used as an abbreviation for "Water-Resources Data" in the REVISED RECORDS paragraph to refer to State annual basic-data reports published before 1975.

WSP is used as an abbreviation for "Water-Supply Paper" in references to previously published reports.

DOWNSTREAM ORDER AND STATION NUMBER

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a main-stream station are listed before that station. A station on a tributary that enters between two main-stream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary on which a station is situated with respect to the stream to which it is immediately tributary is indicated by an indention in a list of stations in the front of the report. Each indention represents one rank. This downstream order and system of indention show which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

As an added means of identification, each hydrologic station and partial-record station has been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete 8-digit number for each station such as 06442500, which appears just to the left of the station name, includes the 2-digit part number "06" plus the 6-digit downstream order number "442500".

NUMBERING SYSTEM FOR WELLS AND MISCELLANEOUS SITES

The 8-digit downstream order station numbers are not assigned to wells and miscellaneous sites where only random water-quality samples or discharge measurements are taken.

The well and miscellaneous site numbering system of the U.S. Geological Survey is based on the grid system of latitude and longitude. The system provides the geographic location of the well or miscellaneous site and a unique number for each site. The number consists of 15 digits. The first 6 digits denote the degrees, minutes, and seconds of latitude, the next 7 digits denote degrees, minutes, and seconds of longitude, and the last 2 digits (assigned sequentially) identify the wells or other sites within a 1-second grid. See figure 4 below.

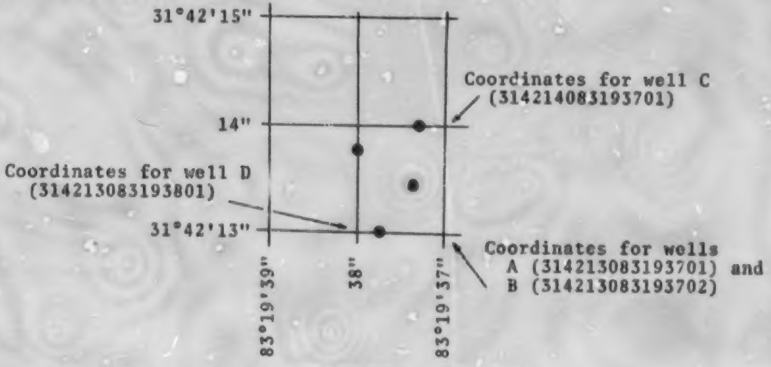


Figure 4. System for numbering wells and miscellaneous sites (latitude and longitude)

SPECIAL NETWORKS AND PROGRAMS

Hydrologic bench-mark station is one that provides hydrologic data for a basin in which the hydrologic regimen will likely be governed solely by natural conditions. Data collected at a bench-mark station may be used to separate effects of natural from manmade changes in other basins which have been developed and in which the physiography, climate, and geology are similar to those in the undeveloped bench-mark basin.

National stream-quality accounting network (NASQAN) is a data collection network designed by the U.S. Geological Survey to meet many of the information demands of agencies or groups involved in national or regional water-quality planning and management. Both accounting and broad-scale monitoring objectives have been incorporated into the network design. Areal configuration of the network is based on river-basin accounting units (identified by 8-digit hydrologic-unit numbers) designated by the Office of Water Data Coordination in consultation with the Water Resources Council. Primary objectives of the network are (1) to depict areal variability of streamflow and water-quality conditions nationwide on a year-by-year basis and (2) to detect and assess long-term changes in streamflow and stream quality.

Pesticide program is a network of regularly sampled water-quality stations where samples are collected to determine the concentration and distribution of pesticides in streams where potential contamination could result from the application of the commonly used insecticides and herbicides. Operation of the network is a Federal interagency activity.

Radiochemical program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

Tritium network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

EXPLANATION OF STAGE AND WATER-DISCHARGE RECORDS

Collection and computation of data

The base data collected at gaging stations consist of records of stage and measurements of discharge of streams or canals, and stage, surface area, and contents of lakes or reservoirs. In addition, observations of factors affecting the stage-discharge relation or the stage-capacity relation, weather records, and other information are used to supplement base data in determining the daily flow or volume of water in storage. Records of stage are obtained from either direct readings on a nonrecording gage or from a water-stage recorder that gives either a continuous graph of the fluctuations or a tape punched at selected time intervals. Measurements of discharge are made with a current meter, using the general methods adopted by the Geological Survey. These methods are described in standard text-books, in Water-Supply Paper 888, and in U.S. Geological Survey Techniques of Water Resources Investigations, book 3, chapter A6.

For stream-gaging stations, rating tables giving the discharge for any stage are prepared from stage-discharge relation curves. If extensions to the rating curves are necessary to express discharge greater than measured, they are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening measurements, computation of flow over dams or weirs), step-backwater techniques, velocity-area studies, and logarithmic plotting. The daily mean discharge is computed from gage heights and rating tables, then the monthly and yearly mean discharge are computed from the daily figures. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is computed by the shifting-control method, in which correction factors based on individual discharge measurements and notes by engineers and observers are used in applying the gage heights to the rating tables. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is basically the shifting-control method.

At some stream-gaging stations the stage-discharge relation is affected by the backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in computing discharge.

At some northern stream-gaging stations the stage-discharge relation is affected by ice in the winter, and it becomes impossible to compute the discharge in the usual manner. Discharge for periods of ice effect is computed on the basis of gage-height record and occasional winter discharge measurements. Consideration is given to the available information on temperature and precipitation, notes by gage observers and hydrologists, and comparable records of discharge for other stations in the same or nearby basins.

For a lake or reservoir station, capacity tables giving the contents for any stage are prepared from stage-area relation curves defined by surveys. The application of the stage to the capacity table gives the contents, from which the daily, monthly, or yearly change in contents is computed.

If the stage-capacity curve is subject to changes because of deposition of sediment in the reservoir, periodic resurveys of the reservoir are necessary to define new stage-capacity curves. During the period between reservoir surveys the computed contents may be increasingly in error due to the gradual accumulation of sediment.

For some gaging stations there are periods when no gage-height record is obtained or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods the daily discharges are estimated on the basis of recorded range in stage, prior and subsequent records, discharge measurements, weather records, and comparison with records for other stations in the same or nearby basins. Likewise daily contents may be estimated on the basis of operator's log, prior and subsequent records, inflow-outflow studies, and other information.

The data in this report generally comprise a description of the station and tabulations of daily and monthly figures. For gaging stations on streams or canals a table showing the daily discharge and monthly and yearly discharge is given. For gaging stations on lakes and reservoirs a monthly summary table of stage and contents or a table showing the daily contents is given. Tables of daily mean gage heights are included for some streamflow stations and for some reservoir stations. Records are published for the water year, which begins on October 1 and ends on September 30.

The description of the gaging station gives the location, drainage area, period of record, notations of revisions of previously published records, type and history of gages, general remarks, average discharge, and extremes of discharge or contents. The location of the gaging station and the drainage area are obtained from most accurate maps available. River mileage, given under "LOCATION" for some stations, is that determined and used by the Corps of Engineers or other agencies. Periods for which there are published records for the present station or for stations generally equivalent to the present one are given under "PERIOD OF RECORD."

Previously published streamflow records of some stations have been found to be in error on the basis of data or information later obtained. Revisions of such records are usually published along with the current records in one of the annual or compilation reports. In order to make it easier to find such revised records, a paragraph headed "REVISED RECORDS" has been added to the description of all stations for which revised records have been published. Listed therein are all the reports in which revisions have been published, each followed by the water years for which figures are revised in that report. In listing the water years only one number is given; for instance, 1965 stands for the water year October 1, 1964, to September 30, 1965. If no daily, monthly, or annual figures of discharge are affected by the revision, the fact is brought out by notations after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the revised figure was first published is given. It should be noted that for all stations for which cubic feet per second per square mile and runoff in inches are published, a revision of the drainage area necessitates corresponding revision of all figures based on the drainage area. Revised figures of cubic feet per second per square mile and runoff in inches resulting from a revision of the drainage area only are usually not published in the annual series of reports.

The type of gage currently in use; the datum of the present gage referred to National Geodetic Vertical Datum; and a condensed history of the types, locations, and datums of previous gages used during the period of record are given under "GAGE." National Geodetic Vertical Datum is explained in "DEFINITION OF TERMS" on page 12.

Information pertaining to the accuracy of the discharge records and to conditions which affect the natural flow of the gaging station is given under "REMARKS." For reservoir stations information on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir is given under "REMARKS."

The average discharge for the number of years indicated is given under "AVERAGE DISCHARGE"; it is not given for stations having fewer than 5 complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. In addition, the median of yearly mean discharges is given for stream-gaging stations having 10 or more complete years of record if the median differs from the average by more than 10 percent. Under "EXTREMES" are given first, the extremes for the period of record, second, information available outside the period of record, and last, those for the current year. Unless otherwise qualified, the maximum discharge (or contents) is the instantaneous maximum corresponding to the crest stage obtained by use of a water-stage recorder (graphic or digital), a crest-stage gage, or a nonrecording gage read at the time of the crest. If the maximum gage height did not occur on the same day as the maximum discharge (or contents), it is given separately. Similarly, the minimum is the instantaneous minimum unless otherwise qualified. For some stations peak discharges are listed with EXTREMES FOR THE CURRENT YEAR; if they are, all independent peaks, including the maximum for the year, above the selected base with the time of occurrence and corresponding gage heights are published in tabular format. The base discharge, which is given in the table heading, is selected so that an average of about three peaks a year will be presented. Peak discharges are not published for any canals, ditches, drains, or for any stream for which the peaks are subject to substantial control by man. Time of day is expressed in 24-hour local standard time; for example, 12:30 a.m. is 0030, 1:30 p.m. is 1330. The minimums for these stations are published in a separate paragraph following the table of peaks.

Skeleton rating tables are published, immediately following EXTREMES, for stream-gaging stations where they serve a useful purpose and the dates of applicability can be easily identified.

The daily table for stream-gaging stations gives the mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month also may be expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN"), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion, if the drainage area includes large noncontributing areas, or if the average annual rainfall over the drainage basin is usually less than 20 inches. In the yearly summary below the monthly summary, the figures shown are the appropriate daily discharges for the calendar and water years.

Footnotes to the table of daily discharge are introduced by the word "NOTE." Footnotes are used to indicate periods for which the discharge is computed or estimated by special methods because of no gage-height record, backwater from various sources, or other unusual conditions. Periods of no gage-height record are indicated if the period is continuous for a month or more or includes the maximum discharge for the year. Periods of backwater from an unusual source, of indefinite stage-discharge relation, or of any other unusual condition at the gage site are indicated only if they are a month or more in length and the accuracy of the records is affected. Days on which the stage-discharge relation is affected by ice are not indicated. The methods used in computing discharge for various unusual conditions have been explained in preceding paragraphs.

For most gaging stations on lakes and reservoirs the data presented comprise a description of the station and a monthly summary table of stage and contents. For some reservoirs a table showing daily contents or stage is given. A skeleton table of capacity at given stages is published for all reservoirs for which records are published on a daily basis, but is not published for reservoirs for which only monthly data are given.

Accuracy of field data and computed results

The accuracy of streamflow data depends primarily on (1) the stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements, and (2) the accuracy of observations of stage, measurements of discharge, and interpretations of records.

The station description under "REMARKS" states the degree of accuracy of the records. "Excellent" means that about 95 percent of the daily discharges are within 5 percent; "good", within 10 percent; and "fair" within 15 percent. "Poor" means that daily discharges have less than "fair" accuracy.

Figures of daily mean discharge in this report are shown to the nearest hundredth of a cubic foot per second for discharges of less than 1 ft^3/s; to tenths between 1.0 and 10 ft^3/s; to whole numbers between 10 and 1,000 ft^3/s; and to 3 significant figures above 1,000 ft^3/s. The number of significant figures used is based solely on the magnitude of the figure. The same rounding rules apply to discharge figures listed for partial-record stations.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, figures of cubic feet per second per square mile and of runoff in inches are not published unless satisfactory adjustments can be made for diversions, for changes in contents of reservoirs, or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

Other data available

Information of a more detailed nature than that published for most of the gaging stations such as observations of water temperatures, discharge measurements, gage-height records, and rating tables is on file in the district office. Also most gaging-station records are available in computer-usable form and many statistical analyses have been made.

Information on the availability of unpublished data or statistical analyses may be obtained from the district office.

Records of discharge collected by agencies other than the Geological Survey

The National Water Data Exchange, Water Resources Division, U.S. Geological Survey, National Center, Reston, Va. 22092, maintains an index of all discharge measurement sites in the State. Information on records available at specific sites can be obtained upon request.

Access to WATSTORE data

The National WAter Data STOrage and REtrieval System (WATSTORE) was established for handling water data collected through the activities of the U.S. Geological Survey and to provide for more effective and efficient means of releasing the data to the public. The system is operated and maintained on the central computer facilities of the Survey at its National Center in Reston, Virginia.

WATSTORE can provide a variety of useful products ranging from simple data tables to complex statistical analyses. A minimal fee, plus the actual computer cost incurred in producing a desired product, is charged to the requester. Information about the availability of specific types of data, the acquisition of data or products, and user charges can be obtained locally from each of the Water Resources Division's district offices (see address given on the back of the title page).

General inquiries about WATSTORE may be directed to:

Chief Hydrologist
U.S. Geological Survey
437 National Center
Reston, Virginia 22092

EXPLANATION OF WATER-QUALITY RECORDS

Collection and examination of data

Surface water samples for analyses usually are collected at or near gaging stations. The quality-of-water records are given immediately following the discharge records at these stations.

The descriptive heading for water-quality records gives the period of record for all water-quality data; the period of daily record for parameters that are measured on a daily basis (specific conductance, pH, dissolved oxygen, water temperature, sediment discharge, etc.); extremes for the period of daily record; extremes for the current year; and general remarks.

For ground-water records, no descriptive statements are given; however, the well number, depth of well, date of sampling and/or other pertinent data are given in the table containing the chemical analyses of the ground water.

Water analysis

Most methods for collecting and analyzing water samples are described in the U.S. Geological Survey Techniques of Water-Resources Investigations listed on a following page.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean values for each constituent measured and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the district office.

Water temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small daily temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

At stations where recording instruments are used, either mean temperatures or maximum and minimum temperatures for each day are published.

Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating samplers. Samples usually are obtained at several verticals in the cross section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross sections.

During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided day method. For periods when no samples were collected, daily loads of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge.

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of the quantities of suspended sediment, records of the periodic measurements of the particle-size distribution of the suspended sediment and bed material are included.

Revisions

If errors in published water-quality records are discovered after publication, appropriate updates are made to the Water-Quality File in the U.S. Geological Survey's computerized data system, WATSTORE, and subsequently by monthly transfer to update transactions to the U.S. Environmental Protection Agency's STORET system. Because the usual volume of updates makes it impractical to document individual changes in the State data-report series or elsewhere, potential users of U.S. Geological Survey water-quality data are encouraged to obtain all required data from the appropriate computer file to insure the most recent updates.

EXPLANATION OF GROUND-WATER LEVEL RECORDS

Collection of the data

Only ground-water level data from a basic network of observation wells are published herein. This basic network contains observation wells so located that the most significant data are obtained from the fewest wells in the most important aquifers.

Each well is identified by means of a 15-digit number that is based on latitude and longitude. See Figure 4.

Measurements are made in many types of wells, under varying conditions of access and at different temperatures, hence, neither the method of measurement nor the equipment can be standardized. At each observation well, however, the equipment and techniques used are those that will ensure that measurements at each well are consistent.

Water-level measurements in this report are given in feet with reference to either National Geodetic Vertical Datum of 1929 or land-surface datum (lsd). National Geodetic Vertical Datum of 1929 is explained in the Definition of Terms paragraph. Land-surface datum is a datum plane that is approximately at land surface at each well. If known, the altitude of the land-surface datum above National Geodetic Vertical Datum of 1929 is given in the well description. The height of the measuring point (MP) above or below land-surface datum is given in each well description. Water levels in wells equipped with recording gages are reported for every fifth day and the end of each month (eom).

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error in determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth or a few hundredths of a foot. For lesser depths to water the accuracy is greater. Accordingly, most measurements are reported to a hundredth of a foot, but some are given only to a tenth of a foot or a larger unit.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

Thirty-seven manuals by the U.S. Geological Survey have been published to date in the series on techniques describing procedures for planning and executing specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) is on surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises. The reports listed below are for sale by the U.S. Geological Survey, Branch of Distribution, 604 South Pickett St., Alexandria, VA 22304 (authorized agent of the Superintendent of Documents, Government Printing Office).

NOTE: When ordering any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations".

1-D1. *Water temperature--influential factors, field measurement, and data presentation*, by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages.

1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W. W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages.

2-D1. *Application of surface geophysics to ground-water investigations*, by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages.

2-E1. *Application of borehole geophysics to water-resources investigations*, by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.

3-A1. *General field and office procedures for indirect discharge measurements*, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages.

3-A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages.

3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages.

3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 pages.

3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages.

3-A6. *General procedure for gaging streams*, by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 pages.

3-A7. *Stage measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages.

3-A8. *Discharge measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages.

3-A9. *Measurement of time of travel and dispersion in streams by dye tracing*, by E. F. Hubbard, F. A. Kilpatrick, L. A. Martens, and J. F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A9. 1982. 44 pages.

3-A11. *Measurement of discharge by moving-boat method*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages.

3-B1. *Aquifer-test design, observation, and data analysis*, by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages.

3-B2. *Introduction to ground-water hydraulics, a programmed text for self-instruction*, by G. D. Bennett: USGS--TWRI Book 3, Chapter B2. 1976. 172 pages.

3-B3. *Type curves for selected problems of flow to wells in confined aquifers*, by J. E. Reed: USGS--TWRI Book 3, Chapter B3. 1980. 106 pages.

3-C1. *Fluvial sediment concepts*, by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages.

3-C2. *Field methods for measurement of fluvial sediment*, by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 pages.

3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages.

4-A1. *Some statistical tools in hydrology*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 pages.

4-A2. *Frequency curves*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages.

4-B1. *Low-flow investigations*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 pages.

4-B2. *Storage analyses for water supply*, by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages.

4-B3. *Regional analyses of streamflow characteristics*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages.

4-D1. *Computation of rate and volume of stream depletion by wells*, by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages.

5-A1. *Methods for determination of inorganic substances in water and fluvial sediments*, by M. W. Skougstad and others, editors: USGS--TWRI Book 5, Chapter A1. 1979. 626 pages.

5-A2. *Determination of minor elements in water by emission spectroscopy*, by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages.

5-A3. *Methods for analysis of organic substances in water*, by D. F. Goerlitz and Eugene Brown: USGS--TWRI Book 5, Chapter A3. 1972. 40 pages.

5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples*, edited by P. E. Greeson, T. A. Ehlke, G. A. Irwin, B. W. Lium, and K. V. Slack: USGS--TWRI Book 5, Chapter A4. 1977. 332 pages.

5-A5. *Methods for determination of radioactive substances in water and fluvial sediments*, by L. L. Thatcher, V. J. Janzer, and K. W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages.

5-C1. *Laboratory theory and methods for sediment analysis*, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages.

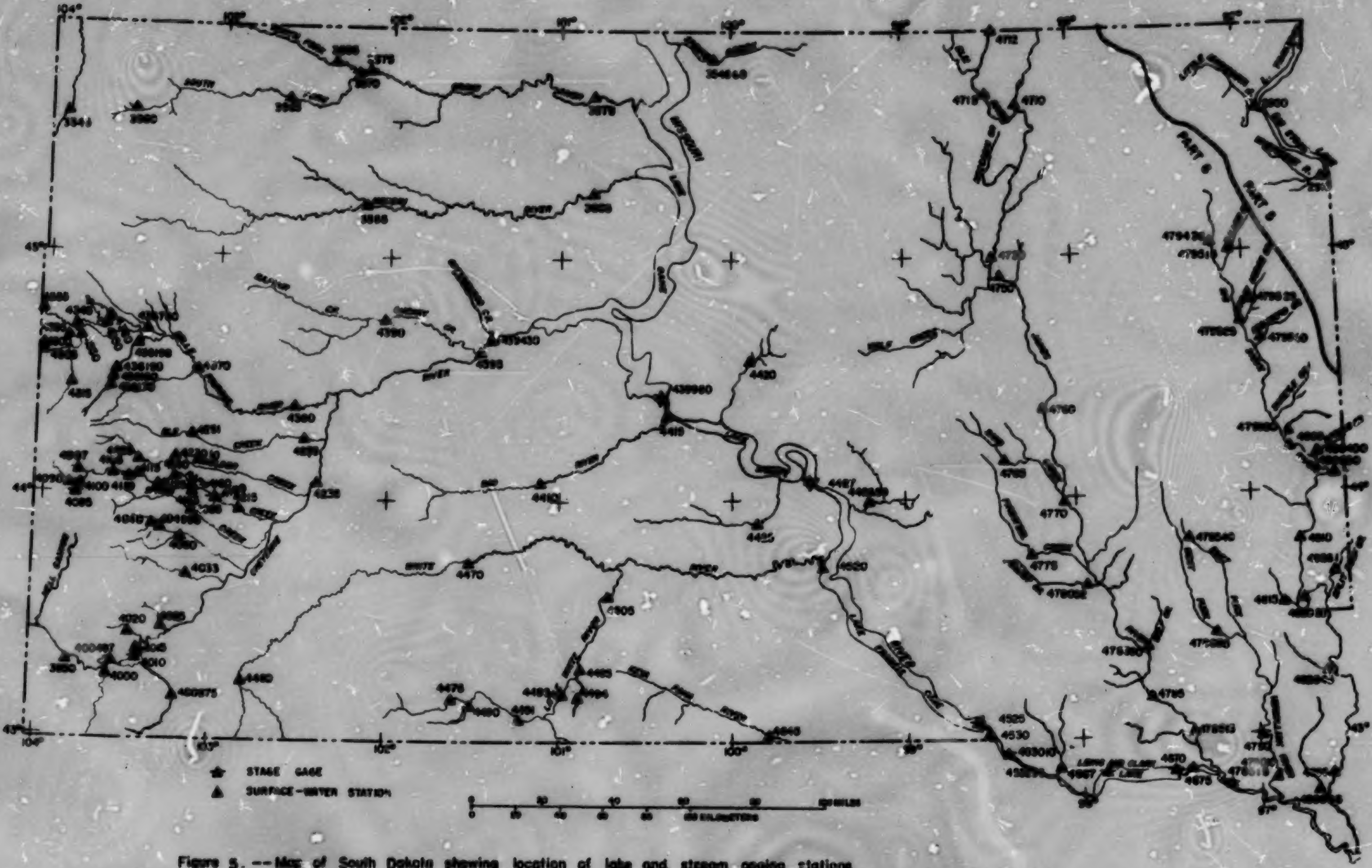
7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages.

7-C2. *Computer model of two-dimensional solute transport and dispersion in ground water*, by L. F. Konikow and J. D. Bredehoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 pages.

7-C3. *A model for simulation of flow in singular and interconnected channels*, by R. W. Schaffranek, R. A. Baltzer, and D. E. Goldberg: USGS--TWRI Book 7, Chapter C3. 1981. 110 pages.

8-A1. *Methods of measuring water levels in deep wells*, by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages

8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages.


104°
103°
102°
101°
100°
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98°
97°
45°
44°
43°
WHITE
RIVER
PART 5
PART 6
4470
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4460
4420
4425
4415
4750
4770
4775
4785
4710
4712
4713
4380
4390
4395
4000
4010
4033
4080
3860
3665
3670
3580
3590
STAGE GAGE
SURFACE-WATER STATION
0 20 40 60 80 100 MILES
0 20 40 60 80 100 KILOMETERS

Figure 5.--Map of South Dakota showing location of lake and stream gaging stations

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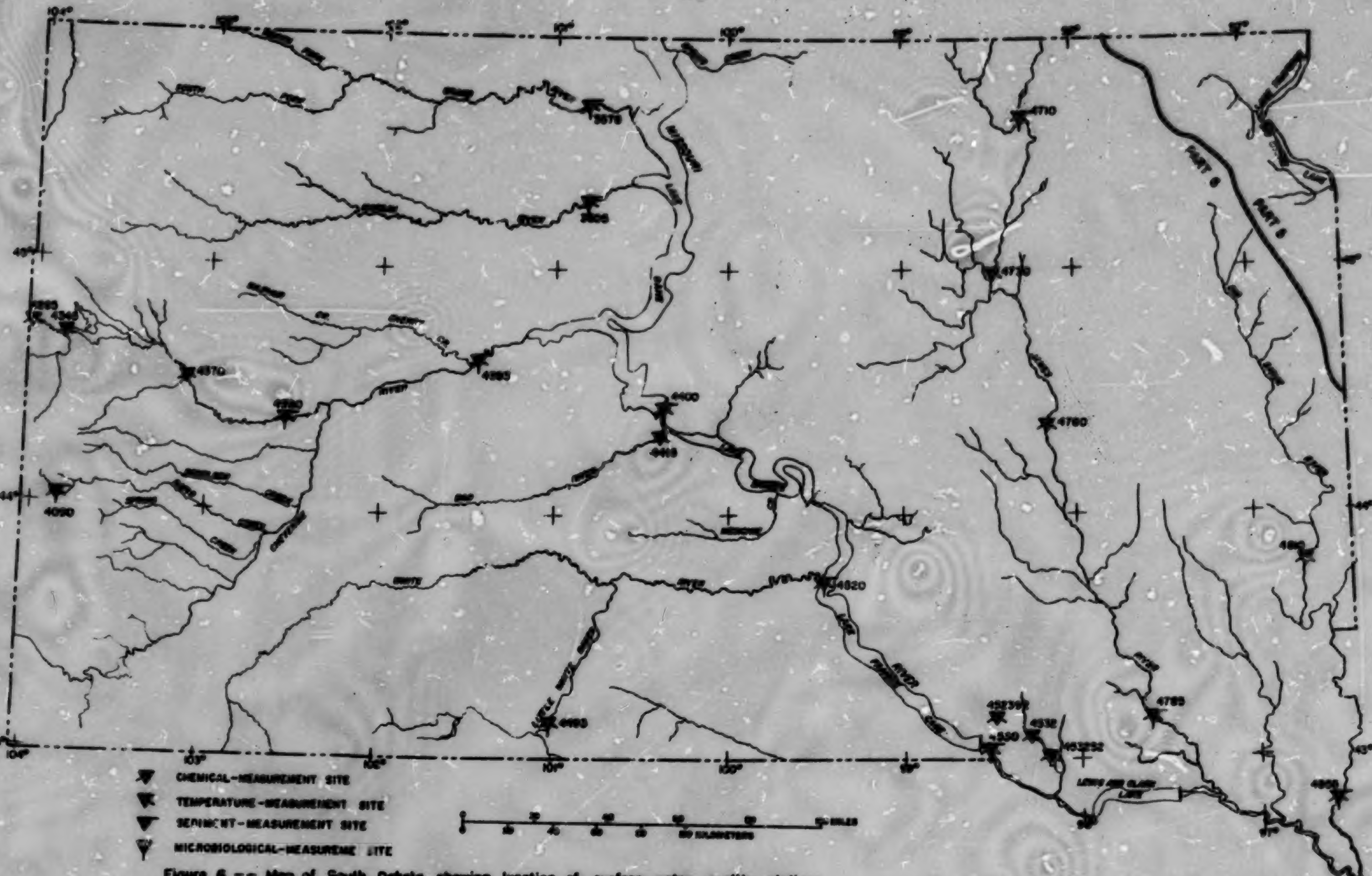
104°
103°
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100°
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97°
45°
44°
43°
MISSOURI
LAKE
RIVER
WHITE
RIVER
PART 6
PART 5
LEWIS AND CLARK LAKE
4370
4395
4400
4090
4620
4710
4730
4760
4785
452392
4532
4530
453252
CHEMICAL-MEASUREMENT SITE
TEMPERATURE-MEASUREMENT SITE
SEDIMENT-MEASUREMENT SITE
MICROBIOLOGICAL-MEASUREMENT SITE
0 20 40 60 80 MILES
0 20 40 60 80 100 KILOMETERS

Figure 6.-- Map of South Dakota showing location of surface-water quality stations

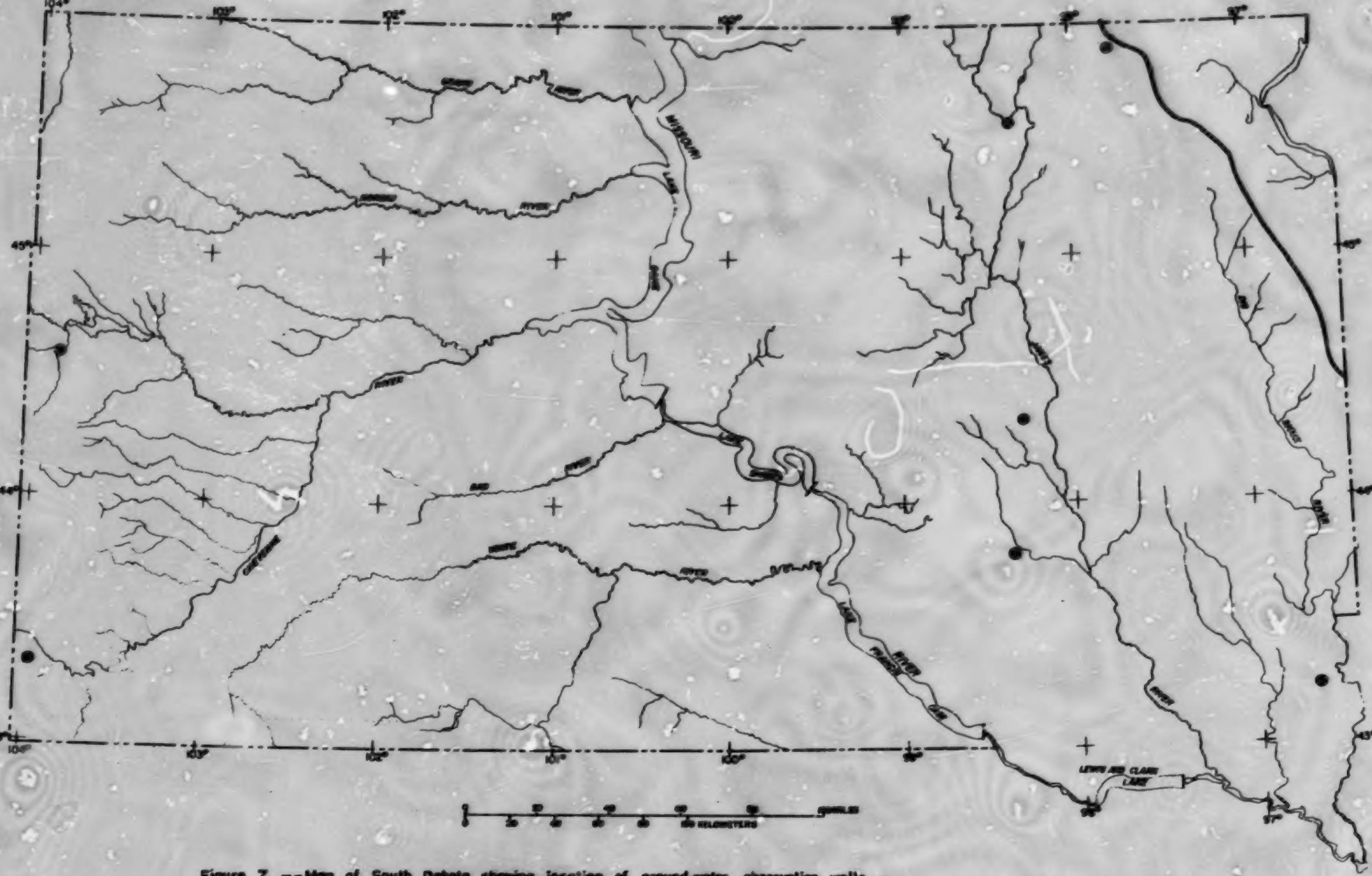
104°
103°
102°
101°
100°
99°
98°
97°
45°
44°
43°
MISSOURI
LAKE
OAHE
GRAND
RIVER
MOREAU
RIVER
CHEYENNE
RIVER
BAD
RIVER
LAKE
SHARPE
WHITE
RIVER
LAKE
FRANCIS
CASE
RIVER
JAMES
RIVER
BIG
SIOUX
RIVER
LEWIS AND CLARK
LAKE
0 20 40 60 80 MILES
0 20 40 60 80 100 KILOMETERS

Figure 7. --Map of South Dakota showing location of ground-water observation wells

25

06334500 LITTLE MISSOURI RIVER AT CAMP CROOK, SD

LOCATION.--Lat 45°32'49", long 103°58'23", in SW¼ sec.2, T.18 N., R.1 E., Harding County, Hydrologic Unit 10110201, on left bank 15 ft upstream from bridge on State Highway 20 at east edge of Camp Crook.

DRAINAGE AREA.--1,970 mi^2, approximately.

PERIOD OF RECORD.--September 1903 to November 1906, May 1956 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1904. WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,108.98 ft National Geodetic Vertical Datum of 1929. Sept. 2, 1903, to Nov. 30, 1906, nonrecording gage at site 0.5 mi upstream at different datum. May 1956 to Oct. 8, 1957, nonrecording gage at site 15 ft downstream, and Oct. 9, 1957, to Sept. 30, 1976, water-stage recorder at present site both at datum 2.00 ft higher.

REMARKS.--Records good except those for winter period, Nov. 19 to Feb. 20, and those for periods of no gage-height record, Mar. 13 to Apr. 18 and June 7 to July 16, which are poor. Small diversions above station for irrigation. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--31 years, 135 ft^3/s (97,810 acre-ft/yr); median of yearly mean discharges, 120 ft^3/s, 86,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,420 ft^3/s Mar. 24, 1978 (gage height, 16.90 ft), present datum; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1952 reached a stage of about 18 ft, present datum, from local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 5	unknown	*3000	*a10.84	June 21	unknown	1520	a8.00

a From floodmarks.
Minimum daily discharge, 0.45 ft^3/s Dec. 24-29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.8	3.8	2.3	.90	10	27	24	200	44	95	13	7.1
2	8.0	5.4	2.5	2.0	10	27	23	450	40	90	16	6.8
3	6.0	3.8	2.4	4.0	11	21	22	1000	40	85	33	6.8
4	3.5	3.8	2.4	6.0	11	19	21	1500	41	80	18	6.3
5	2.8	3.5	2.1	7.0	11	24	20	2200	41	75	18	6.5
6	2.7	3.8	1.8	6.6	10	21	19	2100	45	70	16	6.3
7	2.7	3.8	2.0	6.4	10	33	19	2000	60	70	13	6.3
8	2.6	3.2	2.5	6.0	20	35	19	1890	50	70	8.3	6.0
9	2.5	2.6	2.8	5.8	30	25	19	2410	75	65	6.8	4.6
10	2.4	2.9	3.1	5.6	45	35	19	2310	150	55	6.6	4.1
11	2.1	3.2	3.5	5.4	42	29	20	2090	110	50	6.0	3.9
12	2.0	4.1	3.8	5.0	40	25	25	1840	80	65	5.0	4.0
13	2.2	3.6	4.2	4.7	40	30	35	1520	120	80	7.1	3.9
14	2.7	3.8	4.0	4.3	40	35	30	1160	170	60	10	5.1
15	3.5	3.8	3.5	3.9	45	40	25	791	250	50	11	6.6
16	4.5	3.8	3.0	3.4	40	50	20	551	350	45	14	4.7
17	6.0	3.4	2.0	2.5	37	60	15	418	700	41	28	4.4
18	10	2.9	1.5	2.7	37	80	11	305	800	35	45	3.8
19	7.0	2.9	1.0	2.5	40	90	9.5	231	900	32	42	3.0
20	5.0	2.8	.90	2.2	45	90	9.4	195	1000	31	77	2.4
21	4.0	2.8	.90	2.7	47	90	9.9	167	1200	29	56	3.1
22	3.5	2.7	.70	3.1	48	80	10	143	1000	27	39	2.6
23	3.5	2.6	.50	3.7	54	70	11	126	1100	24	27	5.3
24	3.0	2.5	.45	4.5	60	60	11	115	900	19	21	7.5
25	3.3	2.5	.45	5.0	48	50	10	103	700	17	18	11
26	2.9	2.4	.45	5.8	45	40	12	93	500	18	13	17
27	2.9	2.4	.45	6.8	37	35	17	99	300	13	9.2	15
28	3.8	2.5	.45	8.0	41	30	60	94	200	11	7.5	14
29	3.8	2.4	.45	8.8	36	28	50	69	150	13	7.0	11
30	3.8	2.2	.50	9.0	---	26	70	60	100	17	7.4	9.2
31	3.5	---	.60	9.5	---	25	---	53	---	14	7.2	---
TOTAL	119.0	95.9	57.20	153.80	990	1330	665.8	26283	11216	1446	606.1	198.3
MEAN	3.84	3.20	1.85	4.96	34.1	42.9	22.2	848	374	46.6	19.6	6.61
MAX	10	5.4	4.2	9.5	60	90	70	2410	1200	95	77	17
MIN	2.0	2.2	.45	.90	10	19	9.4	53	40	11	5.0	2.4
AC-FT	23	190	113	305	1960	2640	1320	52130	22250	2870	1200	393

CAL YR 1983	TOTAL	31067.82	MEAN	85.1	MAX	1760	MIN	.09	AC-FT	61620
WTR YR 1984	TOTAL	43161.10	MEAN	118	MAX	2410	MIN	.45	AC-FT	85610

06354860 SPRING CREEK NEAR HERREID, SD

LOCATION.--Lat 45°48'52" (corrected), long 100°06'28", in SW¼ sec.13, T.127 N., R.77 W., Campbell County, Hydrologic Unit 10130102, on left bank 0.5 mi upstream from county highway bridge, 2.4 mi southwest of Herreid and 13.2 mi upstream from high-water line of Lake Oahe.

DRAINAGE AREA.--440 mi^2, approximately, of which about 220 mi^2 is probabably noncontributing.

PERIOD OF RECORD.--October 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,653.60 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--22 years, 8.68 ft^3/s (6,290 acre-ft/yr); median of yearly mean discharges, 4.2 ft^3/s (3,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,340 ft^3/s Mar. 29, 1978 (gage height, 11.49 ft); maximum gage height, 11.60 ft Mar. 17, 1966; no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 40 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar. 22	unknown	*409	*8.48	June 20	0845	77	5.18
June 16	1815	150	6.68				

No flow for many days.

Rating table (gage height, in feet, and discharge, in cubic feet per second)
(Stage-discharge relation affected by ice Feb. 21 to Mar. 8)

3.1	0	5.0	38
3.2	.45	5.5	60
3.4	1.8	6.0	91
3.6	3.9	7.0	189
4.0	10	8.0	330
4.5	22		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	14	33	9.9	.00	8.4	.00	.00
2	.00	.00	.00	.00	.00	10	28	7.0	.00	6.7	.00	.00
3	.00	.00	.00	.00	.00	8.0	23	6.0	.00	5.8	.00	.00
4	.00	.00	.00	.00	.00	6.0	20	6.6	.00	5.1	.00	.00
5	.00	.00	.00	.00	.00	5.0	17	9.2	.00	4.5	.00	.00
6	.00	.00	.00	.00	.00	4.0	14	22	.08	4.0	.00	.00
7	.00	.00	.00	.00	.00	3.0	11	14	15	3.8	.00	.00
8	.00	.00	.00	.00	.00	2.5	8.2	13	11	3.1	.00	.00
9	.00	.00	.00	.00	.00	2.4	7.2	11	6.4	2.6	.00	.00
10	.00	.00	.00	.00	.00	2.3	6.2	7.5	5.1	2.6	.00	.00
11	.00	.00	.00	.00	.00	2.9	3.6	5.7	14	2.5	.00	.00
12	.00	.00	.00	.00	.00	2.4	6.8	4.6	25	1.8	.00	.00
13	.00	.00	.00	.00	.00	2.0	9.5	3.9	20	1.2	.00	.00
14	.00	.00	.00	.00	.00	2.2	13	2.9	17	.84	.00	.00
15	.00	.00	.00	.00	.00	2.2	12	2.6	15	.55	.00	.00
16	.00	.00	.00	.00	.00	2.3	8.4	1.9	89	.23	.00	.00
17	.00	.00	.00	.00	.00	2.8	6.3	1.6	120	.00	.00	.00
18	.00	.00	.00	.00	.00	3.2	5.3	1.3	65	.00	.00	.00
19	.00	.00	.00	.00	.00	3.5	4.5	.87	49	.00	.00	.00
20	.00	.00	.00	.00	.00	5.8	4.0	.84	71	.00	.00	.00
21	.00	.00	.00	.00	.00	89	3.7	1.1	55	.00	.00	.00
22	.00	.00	.00	.00	.20	319	3.1	1.0	40	.00	.00	.00
23	.00	.00	.00	.00	2.0	274	2.7	1.2	43	.00	.00	.00
24	.00	.00	.00	.00	10	202	2.5	.91	38	.00	.00	.00
25	.00	.00	.00	.00	15	157	2.5	.75	30	.00	.00	.00
26	.00	.00	.00	.00	18	128	2.9	.50	24	.00	.00	.00
27	.00	.00	.00	.00	15	119	3.6	.33	18	.00	.00	.00
28	.00	.00	.00	.00	15	90	5.9	.14	14	.00	.00	.00
29	.00	.00	.00	.00	14	64	18	.04	10	.00	.00	.00
30	.00	.00	.00	.00	---	53	12	.19	7.3	.00	.00	.00
31	.00	---	.00	.00	---	41	---	.07	---	.00	.00	---
TOTAL	.00	.00	.00	.00	89.20	1622.5	297.9	138.64	801.88	53.72	.00	.00
MEAN	.00	.00	.00	.00	3.08	52.3	9.93	4.47	26.7	1.73	.00	.00
MAX	.00	.00	.00	.00	18	319	33	22	120	8.4	.00	.00
MIN	.00	.00	.00	.00	.00	2.0	2.5	.04	.00	.00	.00	.00
AC-FT	.0	.00	.00	.00	177	3220	591	275	1590	107	.00	.00

CAL YR 1983	TOTAL	295.14	MEAN	.81	MAX	34	MIN	.00	AC-FT	585
WTR YR 1984	TOTAL	3003.84	MEAN	8.21	MAX	319	MIN	.00	AC-FT	5960

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06355500 NORTH FORK GRAND RIVER NEAR WHITE BUTTE, SD

LOCATION.--Lat 45°47'39", long 102°21'59", in NE¼SE¼ sec.10, T.21 N., R.14 E., Perkins County, Hydrologic Unit 10130301, on right bank 1,400 ft upstream from highway bridge and 9.8 mi south of White Butte.

DRAINAGE AREA.--1,190 mi², approximately.

PERIOD OF RECORD.--October 1945 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1279: 1947, 1950.

GAGE.--Water-stage recorder. Altitude of gage is 2,275 ft, by barometer. See WSP 1917 for history of changes prior to June 12, 1951. June 12, 1951, to Aug. 20, 1975, water-stage recorder, and Aug. 21 to Sept. 10, 1975, nonrecording gage at site 1,300 ft downstream; Sept. 11, 1975, to Mar. 22, 1976, nonrecording gage at present site, and Mar. 23 to July 28, 1976, nonrecording gage at site 1,400 ft downstream, all at present datum.

REMARKS.--Records good except those for winter period, Nov. 10 to Mar. 11, which are poor. Flow regulated by Bowman-Haley Reservoir, capacity, 93,000 acre-ft, 71 mi upstream, beginning August 1966. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--39 years, 54.9 ft³/s (39,780 acre-ft/yr); median of yearly mean discharges, 33 ft³/s (23,900 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,900 ft³/s Apr. 16, 1950 (gage height, 20.0 ft), from floodmarks, from rating curve extended above 19,000 ft³/s on basis of slope-area measurement of peak flow; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 244 ft³/s at 0715 hours, May 4 (gage height, 3.79 ft); no flow Aug. 16 to Sept. 30.

Rating table (gage height, in feet, and discharge, in cubic feet per second)
(Stage-discharge relation affected by ice Nov. 10 to Mar. 11;
shifting-control method used Aug. 15 to Sept. 13)

1.6	0	2.4	31
1.7	.24	2.7	62
1.8	.74	3.0	102
1.9	1.8	3.5	185
2.0	4.8	4.0	295
2.2	15		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.0	6.2	5.5	2.6	11	17	16	50	20	56	.13	.00
2	5.5	6.0	5.0	2.8	10	16	16	69	18	52	.14	.00
3	6.5	5.8	5.5	2.9	10	16	17	100	15	45	.18	.00
4	7.0	5.8	6.0	3.0	10	16	17	214	13	39	.42	.00
5	7.0	5.8	5.5	3.0	9.0	15	18	216	15	34	.62	.00
6	6.5	5.8	5.0	3.0	10	15	17	185	22	27	1.7	.00
7	5.5	5.8	5.0	2.8	12	14	15	158	20	24	1.9	.00
8	4.0	5.8	5.0	2.8	15	13	14	141	18	21	1.7	.00
9	3.5	6.1	4.5	2.8	20	14	14	158	25	21	1.3	.00
10	3.5	6.0	5.0	2.7	21	14	12	158	32	18	.81	.00
11	3.0	6.0	5.5	2.5	20	15	12	143	33	16	.50	.00
12	3.0	6.0	5.5	2.5	18	16	13	131	42	13	.35	.00
13	2.5	6.5	5.0	2.4	18	14	14	120	44	11	.20	.00
14	2.5	6.5	4.5	2.2	19	16	14	108	41	12	.09	.00
15	2.0	6.5	4.0	2.2	18	14	15	97	41	10	.03	.00
16	2.0	6.5	3.5	2.1	18	15	14	88	45	9.4	.00	.00
17	2.1	7.0	3.0	2.2	17	16	15	79	45	7.6	.00	.00
18	2.3	6.5	2.5	2.3	17	16	18	70	38	6.3	.00	.00
19	2.3	6.5	2.8	2.2	18	17	20	63	36	6.2	.00	.00
20	2.2	6.5	2.5	2.0	20	19	19	59	39	3.8	.00	.00
21	2.2	6.0	2.5	3.0	19	16	17	58	43	2.0	.00	.00
22	2.5	6.0	2.3	3.5	18	15	15	49	42	.98	.00	.00
23	3.5	6.0	2.1	4.5	17	16	14	39	42	1.2	.00	.00
24	5.0	6.0	2.0	5.0	16	16	15	37	41	.92	.00	.00
25	5.5	6.0	2.1	4.5	16	15	15	36	65	.77	.00	.00
26	6.0	5.5	2.1	5.0	16	14	25	36	87	.56	.00	.00
27	6.1	5.5	2.2	6.0	17	14	45	36	82	.34	.00	.00
28	6.2	5.5	2.2	8.0	17	16	33	33	75	.24	.00	.00
29	6.2	5.5	2.2	10	17	16	49	30	68	.20	.00	.00
30	6.2	5.5	2.3	11	---	16	47	25	61	.16	.00	.00
31	6.2	---	2.5	12	---	16	---	23	---	.12	.00	---
TOTAL	132.5	181.1	115.3	123.5	464.0	478	585	2809	1208	439.79	10.07	.00
MEAN	4.27	6.04	3.72	3.98	16.0	15.4	19.5	90.6	40.3	14.2	.32	.00
MAX	7.0	7.0	6.0	12	21	19	49	216	87	56	1.9	.00
MIN	2.0	5.5	2.0	2.0	9.0	13	12	23	13	.12	.00	.00
AC-FT	26	359	229	245	920	948	1160	5570	2400	872	20	.00

CAL YR 1983	TOTAL	15966.08	MEAN	43.7	MAX	505	MIN	.20	AC-FT	31670
WTR YR 1984	TOTAL	6546.26	MEAN	17.9	MAX	216	MIN	.00	AC-FT	12980

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06356000 SOUTH FORK GRAND RIVER AT BUFFALO, SD

LOCATION.--Lat 45°34'34", long 103°32'38", in SW¼ sec.29, T.19 N., R.5 E., Harding County, Hydrologic Unit 10130302, on right bank at downstream side of bridge on U.S. Highway 85, 0.3 mi south of Buffalo.

DRAINAGE AREA.--148 mi^2.

PERIOD OF RECORD.--August 1955 to current year.

REVISED RECORDS.--WSP 1917: 1956-57. WRD SD-76-1: 1974(M), 1975.

GAGE.--Water-stage recorder. Datum of gage is 2,839.60 ft National Geodetic Vertical Datum of 1929. Prior to May 5, 1970, nonrecording gage at same site and datum.

REMARKS.--Records poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--29 years, 8.56 ft^3/s (6,200 acre-ft/yr); median of yearly mean discharges, 7.0 ft^3/s (5,100 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,780 ft^3/s June 14, 1963 (gage height, 9.01 ft), from rating curve extended above 550 ft^3/s on basis of slope-area measurement of peak flow; no flow at times in 1956-58, 1960, 1962, 1965, 1972.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1908 reached a stage of 15.4 ft, from information by South Dakota Department of Transportation.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 4	0045	*559	*a7.03	June 10	1130	393	6.10

a Backwater from snow.
Minimum daily discharge, 0.57 ft^3/s Aug. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	2.6	2.3	5.0	3.5	4.3	3.7	251	4.3	2.9	1.6	.67
2	3.7	2.6	2.4	5.6	3.3	4.7	3.6	242	4.2	2.7	1.8	.70
3	2.8	2.6	2.5	6.0	3.3	4.2	3.5	225	4.0	2.9	2.0	.74
4	3.1	2.6	2.4	6.4	3.3	3.6	3.5	261	4.1	2.9	2.1	.79
5	2.9	2.5	2.3	6.6	3.5	3.7	3.6	139	4.2	2.8	2.0	.85
6	3.1	2.5	2.1	6.4	3.4	3.9	3.4	61	11	2.4	1.9	.90
7	3.7	2.5	2.3	6.2	3.3	4.0	3.1	57	15	2.7	1.8	.93
8	2.8	2.5	2.5	6.0	3.1	3.7	3.1	39	6.2	2.7	1.7	.97
9	3.0	2.5	2.8	5.6	3.1	3.5	3.1	30	16	2.4	1.6	1.0
10	2.9	2.5	3.0	5.6	2.9	3.5	3.0	27	251	2.3	1.7	1.8
11	2.7	2.5	2.8	5.4	2.9	3.8	6.2	18	56	2.3	1.7	2.0
12	2.6	2.9	2.8	5.2	3.0	4.7	16	11	35	2.2	1.6	2.1
13	3.0	2.9	2.7	4.8	3.2	5.3	15	9.0	13	1.8	1.6	2.1
14	3.6	2.9	2.8	4.5	3.3	10	5.8	7.5	50	1.8	1.6	2.7
15	4.0	2.8	2.6	4.0	3.3	13	3.5	5.9	40	2.0	1.8	4.8
16	3.7	2.6	2.7	3.5	3.3	18	3.0	5.6	13	1.8	4.9	2.6
17	3.4	2.6	2.6	3.3	3.1	22	2.9	5.2	6.4	1.8	9.0	1.9
18	3.3	2.7	2.5	3.1	3.1	9.0	2.7	4.4	6.0	1.8	55	1.9
19	3.1	2.6	2.3	3.1	3.5	5.6	2.4	4.1	6.3	1.8	19	1.9
20	2.9	2.5	2.3	3.3	4.1	8.6	2.4	4.2	6.6	1.8	3.2	1.8
21	2.9	2.4	2.1	3.5	4.5	8.9	2.3	4.3	16	1.8	2.1	1.9
22	2.6	2.5	1.9	3.7	5.0	4.7	2.2	4.3	12	1.8	1.3	2.0
23	2.6	2.4	1.5	3.9	5.6	4.7	2.3	4.3	6.0	1.8	1.9	3.5
24	2.6	2.4	1.1	3.9	5.1	4.7	2.3	4.1	5.2	1.9	1.1	6.7
25	2.6	2.4	1.1	4.0	4.9	4.5	11	4.2	4.1	1.9	.92	20
26	2.5	2.4	1.3	4.1	5.2	4.4	29	4.3	3.1	1.8	.75	38
27	2.4	2.3	1.4	4.2	4.5	4.3	18	16	2.6	1.8	.57	28
28	2.4	2.2	1.5	4.3	5.4	4.3	31	46	2.6	1.6	.58	13
29	2.4	2.3	2.0	4.3	5.2	4.1	44	7.6	2.6	1.5	.60	5.2
30	2.4	2.3	2.5	4.2	---	3.9	106	5.0	2.7	1.5	.62	3.8
31	2.5	---	4.0	4.0	---	3.9	---	4.8	---	1.5	.67	---
TOTAL	90.7	76.0	71.1	143.7	110.9	191.5	341.6	1511.8	609.2	64.7	128.71	155.25
MEAN	2.93	2.53	2.29	4.64	3.82	6.18	11.4	48.8	20.3	2.09	4.15	5.17
MAX	4.0	2.9	4.0	6.6	5.6	22	106	261	251	2.9	55	38
MIN	2.4	2.2	1.1	3.1	2.9	3.5	2.2	4.1	2.6	1.5	.57	.67
AC-FT	18	151	141	285	220	380	678	3000	1210	128	255	308

CAL YR 1983 TOTAL 2006.69 MEAN 5.50 MAX 296 MIN .91 AC-FT 3980
WTR YR 1984 TOTAL 3495.16 MEAN 9.55 MAX 261 MIN .57 AC-FT 6930

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06356500 SOUTH FORK GRAND RIVER NEAR CASH, SD

LOCATION.--Lat 45°38'56", long 102°38'27", in SW¼SW¼ sec.33 (corrected), T.20 N., R.12 E., Perkins County, Hydrologic Unit 10130302, on left bank at downstream side of highway bridge, 1.0 mi upstream from Little Nasty Creek, 4.0 mi north of Cash, 10 mi south of Lodgepole, 12 mi northwest of Bison, and 16 mi downstream from Big Nasty Creek.

DRAINAGE AREA.--1,350 mi^2, approximately.

PERIOD OF RECORD.--October 1945 to current year. Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 2,422.75 ft National Geodetic Vertical Datum of 1929. Prior to Oct. 25, 1946, nonrecording gage, and Oct. 25, 1946, to May 16, 1966, water-stage recorder, at site 500 ft upstream. May 17, 1966, to May 2, 1968, nonrecording gage, at present site, all at same datum.

REMARKS.--Records good except those for winter period, Nov. 12 to Mar. 16, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--39 years, 53.8 ft^3/s (38,980 acre-ft/yr); median of yearly mean discharges, 36 ft^3/s (26,100 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,000 ft^3/s Apr. 15, 1950 (gage height, 15.40 ft), from rating curve extended above 14,000 ft^3/s on basis of slope-area measurement of peak flow; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 5	1015	*1030	*4.57	June 16	1045	653	3.85
June 12	0145	559	3.62				

Minimum daily discharge, 1.0 ft^3/s Dec. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.2	12	5.0	1.7	65	13	25	133	35	18	7.9	7.4
2	12	12	5.0	1.8	64	13	23	521	27	17	8.2	7.6
3	14	12	5.5	1.8	60	12	23	806	23	16	9.7	7.5
4	13	12	5.5	1.8	60	12	22	831	24	14	9.2	7.7
5	14	12	5.0	1.8	50	12	21	906	25	14	9.7	7.5
6	12	12	5.0	1.8	50	12	21	634	27	13	9.8	7.9
7	12	12	4.7	1.7	55	11	20	432	27	12	8.8	8.5
8	12	12	4.7	1.7	55	11	20	358	33	12	8.5	8.7
9	12	12	4.5	1.7	60	12	19	292	40	13	7.9	8.0
10	12	11	4.7	1.7	60	13	18	239	75	15	7.8	8.5
11	12	9.5	5.0	1.6	55	15	19	207	287	33	7.5	8.6
12	11	9.5	5.0	1.6	55	15	40	184	458	19	7.3	9.4
13	11	9.5	4.5	1.6	50	17	35	139	215	14	7.0	9.1
14	12	9.5	4.0	1.6	50	20	25	105	148	12	7.0	9.6
15	12	10	3.0	1.6	50	25	20	85	284	11	7.0	9.5
16	13	10	2.5	1.5	45	40	18	70	547	11	7.0	9.4
17	13	10	2.2	1.5	45	48	17	55	333	11	7.5	9.8
18	18	9.5	2.0	1.5	50	64	17	42	139	10	10	9.9
19	17	9.0	2.0	1.4	55	60	17	36	78	10	14	11
20	18	8.5	1.9	1.4	50	53	16	29	67	10	21	9.5
21	17	8.0	1.7	2.0	40	71	16	26	52	9.4	48	9.1
22	16	7.5	1.4	20	30	66	15	24	39	9.4	28	8.8
23	15	7.0	1.2	35	25	77	15	21	78	9.4	16	10
24	15	7.0	1.0	50	20	87	16	22	64	9.4	14	12
25	14	6.5	1.1	55	18	72	17	21	49	9.5	12	14
26	13	6.0	1.5	55	16	41	39	20	35	9.4	11	15
27	13	6.0	1.7	60	15	41	36	24	34	9.3	9.2	22
28	13	5.5	1.6	60	13	33	150	30	26	8.7	8.6	42
29	12	5.5	1.5	60	13	28	90	61	23	8.2	7.8	45
30	12	5.0	1.6	65	---	26	73	99	21	8.2	7.5	32
31	12	---	1.7	70	---	26	---	52	---	8.2	7.4	---
TOTAL	411.2	278.0	97.7	564.8	1274	1046	903	6504	3313	384.1	352.3	385.0
MEAN	13.3	9.27	3.15	18.2	43.9	33.7	30.1	210	110	12.4	11.4	12.8
MAX	18	12	5.5	70	65	87	150	906	547	33	48	45
MIN	9.2	5.0	1.0	1.4	13	11	15	20	21	8.2	7.0	7.4
AC-FT	81	551	194	1120	2530	2070	1790	12900	6570	762	699	764

CAL YR 1983	TOTAL 8729.0	MEAN	23.9	MAX	412	MIN	1.0	AC-FT	17310
WTR YR 1984	TOTAL 15513.1	MEAN	42.4	MAX	906	MIN	1.0	AC-FT	30770

06357000 SHADEHILL RESERVOIR AT SHADEHILL, SD

LOCATION.--Lat 45°45'12", long 102°12'12", in E½ sec.25, T.21 N., R.15 E., Perkins County, Hydrologic Unit 10130302, at dam on Grand River, 1.3 mi southwest of Shadehill.

DRAINAGE AREA.--3,120 mi^2, approximately.

PERIOD OF RECORD.--June 1950 to current year (monthend contents only).

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Apr. 3, 1952, occasional elevations obtained by level circuits and Apr. 3, 1952, to Apr. 26, 1970, nonrecording gage at same site and datum.

REMARKS.--Reservoir formed by earthfill dam. Storage began July 1, 1950; dam completed August 1951. Conservation storage, 81,443 acre-ft between elevations 2,250.8 ft (invert of canal and river outlet) and elevation 2,272.0 ft (crest of morning-glory spillway). Dead storage, 58,231 acre-ft below elevation 2,250.8 ft. Flood control, 217,708 acre-ft between elevations 2,272.0 ft and 2,302.0 ft (crest of emergency spillway). Surcharge, 111,203 acre-ft at elevation 2,312.0 ft (maximum pool elevation). Total reservoir capacity is 468,585 acre-ft at elevation 2,312.0 ft. The reservoir provides flood control and water for irrigation purposes. Figures given herein represent usable contents above elevation 2,250.8 ft. Prior to Oct. 1, 1968, reservoir contents published as total contents and included dead storage.

COOPERATION.--Records of elevations and contents furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum usable contents observed, 259,900 acre-ft Apr. 10, 1952 (elevation, 2,297.86 ft); minimum usable observed since first filling to spillway level, 24,941 acre-ft Nov. 17, 1981 (elevation, 2,258.62 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 80,323 acre-ft June 22-26 (elevation, 2,271.77 ft); minimum, 56,103 acre-ft Sept. 30 (elevation, 2,266.50 ft).

MONTHEND ELEVATION, IN FEET NGVD, AND CONTENTS,
IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

Date	Elevation	Contents	Change in contents
Sept. 30	2267.80	61827	
Oct. 31	2267.10	58726	-3101
Nov. 30	2266.96	58111	-615
Dec. 31	2266.90	57848	-263
CAL YR 1983			-8222
Jan. 31	2266.86	57673	-175
Feb. 29	2267.21	59210	+1537
Mar. 31	2267.67	61247	+2037
Apr. 30	2268.13	63308	+2061
May 31	2270.86	75948	+12640
June 30	2271.74	80178	+4230
July 31	2270.40	73767	-6411
Aug. 31	2268.16	63443	-10324
Sept. 30	2266.50	56103	-7340
WTR YR 1984			-5724

06357500 GRAND RIVER AT SHADEHILL, SD

LOCATION.--Lat 45°45'25", long 102°11'41", in NW¼NW¼ sec.30, T.21 N., R.16 E., Perkins County, Hydrologic Unit 10130303, on left bank 0.2 mi downstream from Shadehill Dam, 1.1 mi southwest of Shadehill, and 12.0 mi southwest of Lemmon.

DRAINAGE AREA.--3,120 mi², approximately.

PERIOD OF RECORD.--February 1943 to current year. Records for July 1904 to October 1906 collected at site 4 mi upstream and published as "at Seim" in WSP 130, 172, and 208 have been found to be unreliable and should not be used.

REVISED RECORDS.--WSP 1279: 1943(M). See also Period of Record.

GAGE.--Water-stage recorder. Datum of gage is 2,192.48 ft National Geodetic Vertical Datum of 1929. Prior to Aug. 31, 1947, nonrecording gage, and Aug. 31, 1947, to Oct. 24, 1958, water-stage recorder at site 0.8 mi downstream at datum 6.02 ft lower.

REMARKS.--Records good except those for winter periods, Dec. 24 to Jan. 24 and Feb. 4-11, which are poor. Several observations of water temperature and specific conductance were made during the year. Flow completely regulated by Shadehill Reservoir since July 1, 1950. (See station 06357000.)

AVERAGE DISCHARGE.--41 years, 114 ft³/s (82,590 acre-ft/yr); median of yearly mean discharges, 66 ft³/s (47,800 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 58,000 ft³/s Apr. 16, 1950 (gage height, 21.0 ft), from floodmarks upstream from bridge; 19.06 ft, from floodmark in gage well, unreliable, site and datum then in use; no flow for many days in some years.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 170 ft³/s Aug. 31, Sept. 1, 5; minimum daily discharge, 1.5 ft³/s Sept. 19, 20.

Rating table (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 21 to Nov. 8; stage-discharge relation
affected by ice Dec. 1 to Jan. 24, Feb. 4-11)

2.2	1.2	2.8	30
2.3	3.0	3.0	51
2.4	5.9	3.2	78
2.5	9.9	3.5	131
2.6	15	4.0	262

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	109	72	10	18	18	21	17	20	58	88	97	170
2	109	70	10	18	17	21	17	20	58	88	108	167
3	109	69	11	18	17	21	17	20	56	88	107	167
4	107	68	11	19	17	21	17	20	56	86	107	167
5	107	67	10	19	16	20	17	20	58	85	107	170
6	109	67	10	19	17	20	18	20	59	85	109	169
7	111	66	10	18	17	22	18	20	59	84	109	119
8	114	61	10	17	18	21	18	20	58	84	107	95
9	114	30	10	16	19	20	18	20	59	84	121	95
10	116	18	10	16	19	20	18	20	59	82	159	96
11	117	18	9.5	16	18	20	19	20	59	90	163	97
12	119	18	9.5	15	18	20	19	20	58	95	163	97
13	90	17	9.5	15	17	20	19	20	59	89	163	98
14	52	16	9.5	15	16	19	18	21	62	88	163	97
15	53	16	9.0	16	16	19	18	21	81	88	163	97
16	53	18	8.0	16	16	20	19	20	92	87	163	96
17	23	15	7.0	16	17	18	19	20	90	85	163	41
18	2.2	15	7.0	15	18	18	19	20	90	85	163	2.4
19	2.7	15	7.0	14	17	18	20	19	92	85	164	1.5
20	3.0	15	6.5	14	18	18	20	19	93	85	163	1.5
21	2.9	14	6.5	16	18	18	20	19	95	85	163	47
22	3.1	14	6.5	18	19	18	20	20	95	85	163	92
23	3.3	13	6.0	20	19	18	20	17	94	85	163	92
24	3.7	13	6.0	21	20	18	20	19	93	85	163	92
25	40	11	6.5	21	20	18	21	20	91	86	165	92
26	72	11	10	20	20	18	23	20	92	85	165	113
27	74	10	9.5	19	22	18	22	20	92	85	165	138
28	75	10	10	19	22	17	20	20	90	85	165	135
29	73	9.8	12	19	22	16	20	21	91	85	165	135
30	73	10	16	19	---	16	20	21	90	85	167	135
31	72	---	17	18	---	17	---	37	---	85	170	---
TOTAL	2111.9	866.8	290.5	540	528	589	571	634	2279	2667	4576	3114.4
MEAN	68.1	28.9	9.37	17.4	18.2	19.0	19.0	20.5	76.0	86.0	148	104
MAX	119	72	17	21	22	22	23	37	95	95	170	170
MIN	2.2	9.8	6.0	14	16	16	17	17	56	82	97	1.5
AC-FT	419	1720	576	1070	1050	1170	1130	1260	4520	5290	9080	6180

CAL YR 1983 TOTAL 29075.3 MEAN 79.7 MAX 121 MIN 1.1 AC-FT 57670
WTR YR 1984 TOTAL 18767.6 MEAN 51.3 MAX 170 MIN 1.5 AC-FT 37230

06357800 GRAND RIVER AT LITTLE EAGLE, SD

LOCATION.--Lat 45°39'28", long 100°49'04", in NE¼NE¼ sec.32, T.20 N., R.27 E., Corson County, Hydrologic Unit 10130303, on left bank at downstream side of bridge on State Highway 63, 1.3 mi southwest of Little Eagle and 4.7 mi downstream from Little Oak Creek.

DRAINAGE AREA.--5,370 mi^2, approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1958 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,628.63 ft National Geodetic Vertical Datum of 1929. Prior to May 12, 1959, nonrecording gage, and May 12, 1959, to Aug. 11, 1970, water-stage recorder at site 0.6 mi downstream at datum 2.00 ft lower. Corps of Engineers satellite data-collection platform at station.

REMARKS.--Records good except those for winter period, Nov. 24 to Mar. 19, which are poor. Flow regulated by Shadehill Reservoir 144 mi upstream. (See station 06357000.)

AVERAGE DISCHARGE.--26 years, 236 ft^3/s (171,000 acre-ft/yr); median of yearly mean discharges, 190 ft^3/s (138,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,000 ft^3/s Mar. 23, 1978; maximum gage height, 21.76 ft Mar. 18, 1966, from floodmarks, ice jam, site and datum then in use; no flow at times in 1958-62, 1969, 1975, 1977-84.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,490 ft^3/s at 1145 hours, Mar. 22 (gage height, 7.80 ft); no flow Dec. 24 to Jan. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	137	54	15	.00	250	160	202	1630	33	141	67	131
2	139	57	14	.00	230	150	170	1150	33	130	67	133
3	131	59	14	.00	200	150	155	650	34	124	65	135
4	135	61	13	.00	170	140	132	491	38	115	688	133
5	144	61	12	.00	150	140	113	396	80	112	1540	131
6	126	61	12	.10	200	130	99	332	172	112	450	133
7	120	62	11	.50	250	130	89	307	134	106	264	129
8	113	62	11	1.0	250	120	81	305	203	105	490	129
9	113	62	11	2.0	350	120	77	249	212	115	275	129
10	113	62	10	10	340	130	74	197	191	102	190	123
11	111	62	10	11	300	120	75	175	1250	110	170	94
12	108	54	10	12	250	120	83	152	984	101	153	85
13	107	61	9.0	12	250	110	128	133	554	89	163	82
14	104	54	4.0	11	240	110	153	117	408	82	165	82
15	108	56	1.0	10	220	100	215	105	571	81	160	83
16	113	47	.90	10	210	100	165	92	944	80	158	83
17	104	42	.80	9.0	220	110	138	82	1660	77	155	82
18	89	39	.50	8.0	220	110	109	75	956	76	154	83
19	143	38	.35	7.0	240	120	89	71	562	75	150	82
20	125	38	.30	10	250	216	75	62	1540	73	147	80
21	156	33	.25	20	200	1110	63	63	1770	71	147	73
22	173	28	.20	25	200	1770	57	61	673	69	148	51
23	123	26	.10	35	190	815	54	57	421	65	148	41
24	89	23	.00	45	170	516	55	52	316	67	145	44
25	65	20	.00	50	150	377	48	50	267	95	146	39
26	54	18	.00	55	150	285	319	48	232	80	144	68
27	43	16	.00	60	140	244	1190	47	197	69	137	163
28	35	16	.00	70	150	224	2010	46	179	73	135	167
29	33	15	.00	80	155	179	1250	43	166	91	131	131
30	28	15	.00	100	---	199	1950	40	146	75	129	137
31	34	---	.00	150	---	201	---	37	---	71	129	---
TOTAL	3216	1302	160.40	803.60	6295	8506	9418	7325	14926	2832	7210	3056
MEAN	104	43.4	5.17	25.9	217	274	314	236	498	91.4	233	102
MAX	173	62	15	150	350	1770	2010	1630	1770	141	1540	167
MIN	28	15	.00	.00	140	100	48	37	33	65	65	39
AC-FT	638	2580	318	1590	12490	16870	18680	14530	29610	5620	14300	6060

CAL YR 1983 TOTAL 68207.40 MEAN 187 MAX 4530 MIN .00 AC-FT 135300
WTR YR 1984 TOTAL 65050.00 MEAN 178 MAX 2010 MIN .00 AC-FT 129000

06357800 GRAND RIVER AT LITTLE EAGLE, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1956, 1969, 1972 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1975 to September 1976, October 1977 to September 1981.
WATER TEMPERATURES: October 1975 to September 1980.
SUSPENDED SEDIMENT DISCHARGE: October 1971 to September 1976.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,100 micromhos Dec. 4, 7-9, 1976; minimum daily, 290 micromhos Feb. 7, 1976.
WATER TEMPERATURES: Maximum daily, 33.0°C Aug. 26, 1976; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 19,000 mg/L May 2, 1972; minimum daily mean, 0 mg/L Jan. 10, 11, Feb. 5-10, 1975.
SEDIMENT LOADS: Maximum daily, 259,000 tons Mar. 12, 1972; minimum daily, 0 ton Jan. 10, 11, Feb. 5-10, 1975.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE, AIR (DEG C)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT 27...	0840	44	1120	8.1	11.5	7.0	1300	722	10.3	90	K4600	3600
FEB 01...	1105	250	736	8.5	7.5	.5	160	715	13.3	99	1100	>2000
MAY 22...	0800	61	1910	8.2	12.0	12.5	11	715	8.9	90	210	K89
AUG 16...	0900	155	1380	8.1	24.5	21.5	95	731	7.6	90	--	370

DATE	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
OCT 27...	170	0	41	17	220	72	8	7.5	274	360	10	.30
FEB 01...	100	0	22	12	130	71	6	8.4	183	200	6.6	.20
MAY 22...	380	43	71	49	330	65	8	10	337	770	16	.40
AUG 16...	260	0	47	34	360	74	10	8.9	328	690	15	.40

DATE	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)	PHOSPHORUS, DISSOLVED (MG/L AS P)
OCT 27...	7.9	832	830	1.1	99	.42	.100	.13	4.0	.500	1.5	.410
FEB 01...	7.6	520	500	.71	351	.40	.160	.21	2.3	.250	.77	.250
MAY 22...	6.9	1520	1500	2.1	250	<.10	.040	.05	.80	.240	--	.170
AUG 16...	5.1	1330	1400	1.8	557	<.10	.010	.01	1.0	.110	--	.060

< Less than.
> More than.
K Non-ideal colony count.

06357800 GRAND RIVER AT LITTLE EAGLE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)
OCT 27...	.020	30	1	50	<.5	<1	<1	<3	7	28	1	75
FEB 01...	.250	140	2	37	<.5	1	<1	<3	9	210	4	40
MAY 22...	.030	<10	<1	78	<1.0	<1	<1	<3	4	5	2	130
AUG 16...	.010	10	3	62	<1.0	<1	<1	<3	17	7	4	63

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)
OCT 27...	2	.3	<10	7	1	<1	560	<6	5
FEB 01...	39	<.1	<10	4	<1	<1	250	<6	8
MAY 22...	14	.5	30	3	<1	<1	1000	<6	8
AUG 16...	11	.2	<10	1	<1	1	[illegible]	<6	5

< Less than.

06359500 MOREAU RIVER NEAR FAITH, SD

LOCATION.--Lat 45°11'52", long 102°09'22", in NW¼NW¼ sec.10, T.14 N., R.16 E., Perkins County, Hydrologic Unit 10130306, on left bank 10 ft downstream from bridge on State Highway 73, 3.1 mi downstream from Rabbit Creek and 13.5 mi northwest of Faith.

DRAINAGE AREA.--2,660 mi^2, approximately.

PERIOD OF RECORD.--March 1943 to current year.

REVISED RECORDS.--WSP 1176: 1944. WSP 1279: 1946(M).

GAGE.--Water-stage recorder. Datum of gage is 2,238.68 ft National Geodetic Vertical Datum of 1929. Prior to Oct. 5, 1949, nonrecording gage 0.3 mi upstream and Oct. 5, 1949, to July 16, 1959, nonrecording gage and crest-stage gage at present site; both at datum 1.0 ft higher. July 17, 1959, to Sept. 1, 1971, recording gage at site 500 ft downstream at present datum.

REMARKS.--Records good except those for winter period, Nov. 21 to Mar. 23, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--41 years, 135 ft^3/s (97,810 acre-ft/yr); median of yearly mean discharges, 95 ft^3/s (68,800 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,000 ft^3/s Apr. 9, 1944 (gage height, 20.9 ft), from floodmarks, site and datum then in use, from rating curve extended above 12,000 ft^3/s on basis of slope-area measurement of peak flow; no flow at times in 1944, 1946, 1948-51, 1955-66, 1968-71, 1974-75, 1978-81.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 4	0700	2720	8.44	June 16	2230	*3230	*9.05
June 7	0400	2020	7.45	June 19	1600	3050	8.85
June 13	0430	2040	7.49	June 21	1945	2360	8.61

Minimum daily discharge, 0.30 ft^3/s Dec. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.2	11	7.7	.62	220	18	37	453	41	49	8.0	9.5
2	8.3	11	7.5	.63	210	19	35	1100	37	46	8.0	8.6
3	11	11	8.0	.63	200	19	32	2290	30	43	7.2	7.8
4	11	11	8.0	.65	200	18	31	2610	27	40	7.0	6.5
5	11	11	7.5	.65	170	17	28	2100	31	38	7.2	5.8
6	10	11	7.0	.63	200	17	25	2290	113	35	6.5	5.0
7	10	11	7.0	.63	250	16	24	1820	1210	33	6.0	4.6
8	9.5	11	7.0	.62	300	15	23	1010	310	33	5.5	4.3
9	9.7	11	6.5	.60	350	15	21	696	183	36	4.6	4.0
10	9.9	11	6.5	.55	300	13	20	588	443	42	4.6	4.0
11	10	12	6.5	.55	270	14	20	400	1090	30	5.4	4.1
12	10	19	7.0	.55	280	20	20	284	1070	112	5.5	4.0
13	9.3	15	6.5	.50	270	25	22	224	1760	117	5.4	4.0
14	8.7	15	6.0	.50	250	30	21	168	1050	74	6.1	5.5
15	9.3	13	5.0	.50	250	25	20	134	1490	51	5.3	5.4
16	9.5	12	2.0	.50	230	23	18	104	2510	41	4.7	5.4
17	9.4	12	1.0	.45	200	23	17	82	2510	33	6.5	5.4
18	9.1	12	.90	.45	200	25	16	72	1930	28	5.8	5.1
19	42	12	.90	.45	220	30	15	59	2850	24	32	5.2
20	37	12	.80	.40	250	35	14	49	1530	20	53	5.1
21	26	11	.60	.50	230	33	14	46	2320	18	97	4.7
22	19	11	.45	1.5	150	50	13	41	1290	17	60	4.6
23	19	10	.35	3.0	80	65	13	36	426	15	57	5.6
24	17	10	.30	5.0	35	57	16	32	283	15	53	9.6
25	15	9.0	.35	10	20	52	22	30	195	14	39	14
26	14	8.5	.45	15	18	52	164	29	135	14	29	11
27	11	8.5	.50	20	17	51	184	51	100	13	22	11
28	11	8.0	.45	40	17	46	171	47	82	11	19	11
29	11	8.0	.45	100	17	42	197	31	66	10	15	10
30	11	7.7	.50	200	---	40	293	28	56	9.4	13	11
31	11	---	.60	230	---	39	---	36	---	8.8	11	---
TOTAL	412.9	335.7	114.30	636.06	5404	944	1546	16940	25168	1070.2	609.3	201.8
MEAN	13.3	11.2	3.69	20.5	186	30.5	51.5	546	839	34.5	19.7	6.73
MAX	42	19	8.0	230	350	65	293	2610	2850	117	97	14
MIN	3.2	7.7	.30	.40	17	13	13	28	27	8.8	4.6	4.0
AC-FT	81	666	227	1260	10720	1870	3070	33600	49920	2120	1210	400

CAL YR 1983 TOTAL 10837.20 MEAN 29.7 MAX 326 MIN .30 AC-FT 21500
WTR YR 1984 TOTAL 53382.26 MEAN 146 MAX 2850 MIN .30 AC-FT 105900

06360500 MOREAU RIVER NEAR WHITEHORSE, SD

LOCATION.--Lat 45°15'21", long 100°50'33", in SW¼SE¼ sec.17, T.15 N., R.27 E., Dewey County, Hydrologic Unit 10130306, on left bank 30 ft downstream from bridge, 2.4 mi southeast of Whitehorse, 8.8 mi downstream from Little Moreau River, and 16.3 mi southeast of town of Timber Lake.

DRAINAGE AREA.--4,880 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1954 to current year.

REVISED RECORDS.--WRD SD-78-1: 1977.

GAGE.--Water-stage recorder. Datum of gage is 1,661.48 ft National Geodetic Vertical Datum of 1929. Prior to Nov. 24, 1954, nonrecording gage at same site and datum.

REMARKS.--Records poor. U.S. Weather Bureau gage-height telemeter at station. Corps of Engineers satellite data-collection platform at station.

AVERAGE DISCHARGE.--30 years, 202 ft³/s (146,300 acre-ft/yr); median of yearly mean discharges, 130 ft³/s (94,200 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,700 ft³/s May 24, 1982 (gage height, 26.00 ft); maximum gage height, 26.20 ft Mar. 14, 1972 (backwater from ice); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1953 reached a stage of about 26.2 ft. Flood in March 1947 was probably higher.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,800 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 26	1830	1880	6.88	June 21	1100	2970	8.95
May 6	0445	2430	7.97	June 23	1715	2610	8.30
June 17	0845	*3780	*10.27				

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	22	5.5	.00	100	140	98	914	75	145	4.0	16
2	1.8	20	6.0	.00	250	130	92	740	70	125	2.9	12
3	1.5	19	6.0	.00	230	110	87	746	65	105	2.0	9.1
4	1.2	19	6.5	.00	210	110	80	1140	60	95	2.0	6.8
5	10	20	6.5	.00	200	100	70	2060	60	85	1.9	4.7
6	20	19	6.0	.00	180	100	65	2360	60	75	1.8	3.7
7	26	18	6.0	.00	180	80	58	1970	60	65	1.4	2.3
8	25	15	6.0	.00	200	70	55	2150	60	60	1.1	1.1
9	25	15	5.5	.00	210	80	50	1680	460	55	.60	.45
10	26	15	5.5	.00	250	90	48	1030	1210	50	.45	.00
11	26	15	5.5	.00	300	90	44	744	668	45	.45	.00
12	26	16	6.0	.00	350	90	45	650	687	40	.30	.00
13	25	16	6.0	.00	330	95	100	510	1190	35	.00	.00
14	23	16	5.5	.00	300	95	80	380	1480	32	.00	.00
15	23	16	5.0	.00	400	95	55	300	2520	29	.00	.00
16	24	16	4.0	.00	350	100	45	245	1610	40	.00	.00
17	25	16	2.0	.00	300	90	43	210	2830	105	.00	.00
18	25	15	1.2	.00	270	80	39	170	3120	88	.00	.00
19	45	13	1.0	.00	250	80	38	150	2760	70	.00	.00
20	80	10	.90	.00	280	100	32	130	2160	58	.00	.00
21	75	8.0	.80	.00	300	500	25	115	2760	45	.00	.00
22	50	8.0	.50	.00	290	600	22	100	1800	40	.00	.00
23	50	7.5	.30	.00	300	500	19	95	2330	35	.00	.00
24	45	7.5	.20	.00	270	400	17	85	1360	28	.00	.00
25	40	7.5	.00	.00	200	420	18	80	700	22	.00	.00
26	35	7.0	.00	.00	180	160	800	75	485	33	.00	.00
27	30	7.0	.00	.00	150	165	732	70	405	37	.00	.00
28	26	7.0	.00	.20	150	155	854	70	300	16	10	.00
29	25	6.0	.00	1.0	150	120	677	65	225	9.7	35	.00
30	24	6.0	.00	10	---	110	957	55	175	4.7	29	.00
31	23	---	.00	38	---	98	---	65	---	4.0	22	---
TOTAL	883.3	402.5	98.40	49.20	7130	5153	5345	19154	31745	1676.4	114.90	56.15
MEAN	28.5	13.4	3.17	1.59	246	166	178	618	1058	54.1	3.71	1.87
MAX	80	22	6.5	38	400	600	957	2360	3120	145	35	16
MIN	1.2	6.0	.00	.00	100	70	17	55	60	4.0	.00	.00
AC-FT	175	798	195	98	14140	10220	10600	37990	62970	3330	228	111

CAL YR 1983 TOTAL 21463.96 MEAN 58.8 MAX 1420 MIN .00 AC-FT 42570
WTR YR 1984 TOTAL 71807.85 MEAN 196 MAX 3120 MIN .00 AC-FT 142400

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06360500 MOREAU RIVER NEAR WHITEHORSE, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969, 1972-76, 1978 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED SEDIMENT DISCHARGE: October 1970 to September 1976.

REMARKS.--No flow Oct. 7 to Nov. 17, Jan. 6 to Mar. 9, May 27 to June 2, July 14 to Sept. 30. Sediment-discharge records prior to Oct. 1, 1971, on file in the District office, Corps of Engineers, Omaha, NE.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 20,300 mg/L May 9, 1972; minimum daily mean, 0 mg/L on many days most years.
SEDIMENT LOADS: Maximum daily, 420,000 tons May 10, 1975; minimum daily, 0 ton on many days each year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE, AIR (DEG C)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, XF AGAR (COLS. PER 100 ML)
OCT 26...	1010	35	1230	7.6	13.5	8.0	120	--	8.5	--	140	870
FEB 27...	1110	154	1330	7.9	.0	.5	380	735	13.9	100	35	480
MAY 21...	1130	118	1110	8.0	15.0	18.5	110	722	8.4	95	290	670
JUL 16...	1130	30	1180	8.1	23.5	27.5	32	724	7.6	102	K43	180

DATE	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
OCT 26...	230	114	60	19	190	63	6	12	115	530	8.1	.30
FEB 27...	250	79	51	29	220	65	6	7.2	169	500	9.1	.30
MAY 21...	260	127	56	28	170	58	5	7.1	129	480	6.7	.30
JUL 16...	300	105	69	32	250	63	6	8.7	199	570	8.1	.40

DATE	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)	PHOSPHORUS, DISSOLVED (MG/L AS P)
OCT 26...	3.6	913	900	1.2	86	.33	.060	.08	1.6	2.10	6.4	1.80
FEB 27...	4.8	981	920	1.3	408	.52	.210	.27	1.6	.320	.98	.300
MAY 21...	6.8	874	830	1.2	278	<.10	.020	.03	1.5	.150	--	.030
JUL 16...	9.1	1080	1100	1.5	87	<.10	.020	.03	1.2	.060	--	.010

< Less than.
K Non-ideal colony count.

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06360500 MOREAU RIVER NEAR WHITEHORSE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
OCT 26...	1.60	<10	7	30	<.5	1	<1	<3	19	8	1	130
FEB 27...	.030	<10	2	25	<.5	<1	<1	<3	6	16	7	130
MAY 21...	.020	<10	2	30	<1.0	<1	<1	<3	11	5	<1	130
JUL 16...	<.010	--	--	--	--	--	--	--	--	--	--	--

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 26...	13	.5	<10	5	4	<1	650	<6	13	--	--	--
FEB 27...	15	.4	<10	2	1	<1	640	<6	18	--	--	--
MAY 21...	8	.6	<10	2	1	<1	680	<6	5	--	--	--
JUL 16...	--	--	--	--	--	--	--	--	--	102	8.3	94

< Less than.

06395000 CHEYENNE RIVER AT EDGEMONT, SD

LOCATION.--Lat 43°18'20", long 103°49'14", in SW¼SE¼SE¼ sec.36, T.8 S., R.2 E., Fall River County, Hydrologic Unit 10120106, on right bank at downstream side of bridge on U.S. Highway 18, at Edgemont, 300 ft downstream from Burlington Northern Railroad bridge and 600 ft upstream from Cottonwood Creek.

DRAINAGE AREA.--7,143 mi^2.

PERIOD OF RECORD.--June 1903 to November 1906 (no winter records), April 1928 to February 1933, October 1946 to current year.

REVISED RECORDS.--WSP 1086: Drainage area. WSP 1116: 1947. WRD SD-78-1 1977.

GAGE.--Water-stage recorder. Datum of gage is 3,414.56 ft National Geodetic Vertical Datum of 1929. Prior to Dec. 1, 1906, nonrecording gage 20 ft upstream at datum 0.7 ft lower. Apr. 11, 1928, to Feb. 28, 1933, Oct. 4, 1946, to Oct. 23, 1947, and Jan. 11, 1961, to Apr. 24, 1963, nonrecording gage, and Oct. 24, 1947, to Jan. 10, 1961, and Apr. 25, 1963, to Sept. 30, 1972, water-stage recorder all at present site at datum 2.00 ft higher.

REMARKS.--Records good except those for winter period, Nov. 23 to Mar. 13, which are poor. Many small reservoirs above station used for stock and irrigation water, total capacity, about 45,000 acre-ft. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--42 years, 98.4 ft^3/s (71,290 acre-ft/yr); median of yearly mean discharges, 76 ft^3/s (55,100 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,000 ft^3/s May 20, 1978 (gage height, 13.65 ft), present datum; no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 12, 1920, reached a stage of 13.0 ft and May 1, 1922, 14.0 ft, present datum, from floodmarks at railroad bridge.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,160 ft^3/s at 1345 hours, May 3 (gage height, 4.94 ft), no peak above base of 1,500 ft^3/s; minimum daily, 1.0 ft^3/s Dec. 22, 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.3	13	9.0	10	210	130	82	565	98	39	80	6.2
2	5.3	14	8.0	11	200	140	80	1120	75	37	144	5.2
3	12	14	7.0	12	190	150	83	1340	61	37	93	5.4
4	20	14	6.8	13	170	160	79	1100	67	58	53	5.2
5	18	14	6.6	14	160	180	70	997	87	53	41	5.2
6	18	14	6.4	13	160	150	70	931	67	33	71	5.2
7	17	15	6.6	11	170	100	73	880	63	27	33	5.0
8	15	27	7.0	7.0	160	110	75	708	72	26	19	4.5
9	11	25	7.4	4.0	160	110	74	608	110	28	13	5.5
10	11	23	8.0	2.6	160	120	72	536	97	42	12	5.5
11	12	20	8.0	2.3	160	120	63	461	93	58	10	5.3
12	11	71	8.0	2.0	160	150	52	404	123	81	8.0	6.4
13	11	25	7.4	1.8	150	200	46	373	255	47	7.3	6.1
14	13	30	6.4	1.6	150	269	35	357	141	25	8.9	6.4
15	17	23	5.0	1.5	150	357	34	308	398	18	8.0	6.1
16	23	19	3.0	1.4	150	569	32	257	367	49	8.5	6.1
17	20	19	1.2	1.3	140	578	21	217	315	21	13	5.1
18	22	19	1.1	1.2	150	540	19	207	245	19	97	4.4
19	20	16	1.1	1.2	160	450	25	194	232	25	46	3.9
20	14	16	1.1	1.2	160	540	38	175	129	14	48	3.0
21	18	11	1.1	1.2	180	660	28	170	118	11	42	2.5
22	22	7.4	1.0	1.3	160	729	23	155	109	11	40	2.7
23	20	7.4	1.0	1.4	150	606	17	146	99	14	33	3.0
24	24	9.0	1.1	1.5	140	473	41	142	81	16	24	3.2
25	24	10	1.4	1.7	130	343	176	140	80	10	26	3.8
26	21	10	1.9	5.0	130	261	148	125	71	15	31	3.7
27	20	10	2.0	30	130	290	141	126	60	22	24	4.1
28	18	10	1.7	170	120	246	348	128	52	10	18	5.1
29	17	10	1.8	190	120	181	222	126	45	18	12	5.5
30	15	10	2.0	200	---	135	366	117	39	18	8.3	6.0
31	15	---	4.0	220	---	100	---	109	---	29	7.0	---
TOTAL	509.6	475.8	134.1	935.2	4530	9147	2633	13222	3849	911	1079.0	145.3
MEAN	16.4	15.9	4.33	30.2	156	295	87.8	427	128	29.4	34.8	4.84
MAX	24	30	9.0	220	210	729	366	1340	398	81	144	6.4
MIN	5.3	7.4	1.0	1.2	120	100	17	109	39	10	7.0	2.5
AC-FT	101	944	266	1850	8990	18140	5220	26230	7630	1810	2140	288

CAL YR 1983	TOTAL	15959.5	MEAN	43.7	MAX	837	MIN	1.0	AC-FT	31660
WTR YR 1984	TOTAL	37571.0	MEAN	103	MAX	1340	MIN	1.0	AC-FT	74520

06400000 HAT CREEK NEAR EDGEMONT, SD

LOCATION.--Lat 43°14'24", long 103°35'16", in SW¼SE¼NE¼ sec.25, T.9 S., R.4 E., Fall River County, Hydrologic Unit 10120108, on right bank at upstream side of bridge on State Highway 71, 2.0 mi upstream from mouth, 2.0 mi west of Heppner, and 12.5 mi southeast of Edgemont.

DRAINAGE AREA.--1,044 mi^2.

PERIOD OF RECORD.--April 1905 to September 1906, October 1950 to current year. Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 3,295.71 ft National Geodetic Vertical Datum of 1929. Nonrecording gage Apr. 8, 1905, to May 2, 1906, at site 0.6 mi downstream and May 3 to July 7, 1906, at site 0.4 mi upstream at different datum. Nov. 6, 1950, to May 1, 1951, and July 18 to Sept. 7, 1975, nonrecording gage and May 2, 1951, to July 17, 1975, recording gage, at site 0.4 mi downstream at present datum.

REMARKS.--Records good. A few small diversions above station for irrigation. Lander ditch diverts water from Hat Creek 0.4 mi upstream from gaging station for irrigating hay meadows downstream from station. Several observations of water temperature and specific conductance were made during the year. Results of discharge measurements, in cubic feet per second, of Lander ditch during water year 1984 are given herewith:

Oct. 4	0	Feb. 7	0.57	June 13	0
Nov. 8	0	Mar. 6	9.63	July 17	0
Dec. 6	0	Apr. 4	6.12	Aug. 16	.37
Jan. 10	0	May 3	.30		

AVERAGE DISCHARGE.--35 years, 18.8 ft^3/s (13,620 acre-ft/yr); median of yearly mean discharges, 12 ft^3/s (8,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,300 ft^3/s June 16, 1967 (gage height, 13.35 ft), from rating curve extended above 2,600 ft^3/s on basis of slope-area measurement at 11.98 ft; no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 819 ft^3/s at 0345 hours, June 15 (gage height, 12.59 ft), no peak above base of 1,000 ft^3/s; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.66	1.3	1.4	4.0	5.8	1.9	149	16	15	3.2	.00
2	.00	.68	1.3	1.4	5.0	4.5	2.1	233	13	14	2.8	.00
3	.00	.70	1.4	1.6	7.0	4.9	3.8	305	12	13	2.6	.00
4	.00	.72	1.5	1.6	10	3.8	5.8	330	10	14	19	.00
5	.00	.74	1.5	1.7	20	4.4	5.6	471	9.8	13	16	.00
6	.00	.80	1.3	1.7	22	5.3	17	453	10	12	6.3	.00
7	.00	.90	1.1	1.8	27	2.9	34	380	9.3	11	3.0	.00
8	.00	.98	1.1	1.9	23	1.8	19	233	17	9.9	3.1	.00
9	.00	1.0	1.1	2.0	17	1.7	22	173	13	8.9	1.6	.00
10	.00	.91	1.2	4.0	18	1.6	18	134	12	30	.88	.00
11	.00	.84	1.3	33	26	1.5	6.8	104	12	27	.22	.00
12	.00	.86	1.4	19	18	1.3	10	93	12	23	.07	.00
13	.00	.87	1.3	9.9	7.3	1.3	5.9	77	7.8	15	.11	.00
14	.00	.85	1.3	7.2	7.5	1.3	1.1	62	145	10	.12	.00
15	.00	.88	1.3	17	6.5	1.5	1.2	51	595	8.0	.13	.00
16	.00	.92	1.2	10	2.8	1.6	1.5	34	625	7.0	.09	.00
17	.00	.96	.94	8.0	3.2	1.6	1.6	22	402	6.0	.07	.00
18	.00	1.0	.56	2.5	3.1	2.5	1.8	22	222	4.7	.14	.00
19	.00	2.0	.56	2.0	3.1	1.8	2.1	15	221	4.0	.09	.00
20	.08	2.0	.56	1.5	3.2	1.4	2.5	16	229	12	.16	.00
21	.14	2.0	.54	2.0	3.5	3.5	5.7	20	141	6.5	.32	.00
22	.15	2.2	.52	2.1	6.3	1.1	8.7	21	92	4.8	.22	.00
23	.18	2.1	.50	2.2	5.4	1.3	8.4	19	66	3.8	.19	.00
24	.22	1.9	.60	2.3	4.9	1.4	5.3	19	51	3.7	.16	.00
25	.28	2.0	.70	2.4	5.6	1.4	3.1	22	42	3.7	.13	.00
26	.29	1.9	.80	2.5	9.3	1.3	43	17	31	3.2	.06	.00
27	.56	1.8	.90	2.6	11	1.7	87	40	27	2.7	.00	.00
28	.58	1.7	1.0	2.7	6.2	1.7	72	20	23	7.5	.00	.00
29	.60	1.6	1.1	2.8	6.2	1.8	82	26	20	7.7	.00	.00
30	.62	1.3	1.2	2.9	---	1.7	129	24	18	4.4	.00	.00
31	.64	---	1.3	3.1	---	1.9	---	20	---	3.9	.00	---
TOTAL	4.34	37.77	32.38	156.8	292.1	71.3	607.9	3605	3103.9	309.4	60.76	.00
MEAN	.14	1.26	1.04	5.06	10.1	2.30	20.3	116	103	9.98	1.96	.00
MAX	.64	2.2	1.5	33	27	5.8	129	471	625	30	19	.00
MIN	.00	.66	.50	1.4	2.8	1.1	1.1	15	7.8	2.7	.00	.00
AC-FT	8.	75	64	311	579	141	1210	7150	6160	614	121	.00

CAL YR 1983	TOTAL	3079.65	MEAN	8.44	MAX	372	MIN	.00	AC-FT	6110
WTR YR 1984	TOTAL	8281.65	MEAN	22.6	MAX	625	MIN	.00	AC-FT	16430

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06400497 CASCADE SPRINGS NEAR HOT SPRINGS, SD

LOCATION.--Lat 43°20'10", long 103°33'07", in SE¼SW¼ sec.20, T.8 S., R.5 E., Fall River County, Hydrologic Unit 10120106, on right bank near upstream end of culvert on State Highway 71, 3.3 mi upstream from mouth, and 8.5 mi southwest of Hot Springs.

DRAINAGE AREA.--0.47 mi^2.

PERIOD OF RECORD.--July 1976 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,440 ft, from topographic map.

REMARKS.--Records good. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--8 years, 20.2 ft^3/s (14,630 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49 ft^3/s July 4, 1977 (gage height, 6.25 ft); minimum daily, 16 ft^3/s Mar. 16, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 24 ft^3/s May 8-27, May 29 to June 3, June 6; minimum daily discharge, 19 ft^3/s many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	20	20	20	21	23	23	23	24	23	21	20
2	20	20	20	20	21	23	23	23	24	23	21	20
3	20	20	20	20	21	23	23	23	24	23	21	20
4	20	20	20	20	21	23	23	23	23	23	21	20
5	20	20	20	20	21	23	23	23	23	23	21	20
6	20	20	20	20	21	23	23	23	24	23	21	20
7	20	20	20	20	21	23	23	23	23	23	21	20
8	20	20	20	20	21	23	23	24	23	23	21	20
9	20	20	20	20	21	23	23	24	23	22	21	20
10	20	20	20	20	21	23	23	24	23	22	21	20
11	20	20	20	20	21	23	23	24	23	22	21	20
12	20	20	20	20	21	23	23	24	23	22	21	20
13	19	20	20	20	21	23	23	24	23	21	21	20
14	19	20	20	20	22	23	23	24	23	21	21	20
15	19	20	20	20	22	23	23	24	23	21	21	20
16	19	20	20	20	22	23	23	24	23	21	21	20
17	19	20	20	20	22	23	23	24	23	21	21	20
18	19	20	20	20	22	23	23	24	23	21	20	20
19	19	20	19	20	22	23	23	24	23	21	20	20
20	19	20	19	20	22	23	23	24	23	21	20	20
21	20	20	20	20	22	23	23	24	23	21	20	20
22	20	20	20	20	22	23	23	24	23	21	21	20
23	20	20	20	20	22	23	23	24	23	21	20	20
24	20	20	20	20	22	23	23	24	23	21	20	20
25	20	20	20	20	22	23	23	24	23	21	20	20
26	20	20	20	20	23	23	23	24	23	21	20	20
27	20	20	20	20	23	23	23	24	23	21	20	20
28	20	20	20	20	23	23	23	23	23	21	20	20
29	20	20	20	21	23	23	23	24	23	21	20	20
30	20	20	20	21	---	23	23	24	23	21	20	20
31	20	---	20	21	---	23	---	24	---	21	20	---
TOTAL	612	600	618	623	629	713	690	736	694	671	638	600
MEAN	19.7	20.0	19.9	20.1	21.7	23.0	23.0	23.7	23.1	21.6	20.6	20.0
MAX	20	20	20	21	23	23	23	24	24	23	21	20
MIN	19	20	19	20	21	23	23	23	23	21	20	20
AC-FT	121	1190	1230	1240	1250	1410	1370	1460	1380	1330	1270	1190

CAL YR 1983 TOTAL 7610 MEAN 20.8 MAX 22 MIN 19 AC-FT 15090
WTR YR 1984 TOTAL 7824 MEAN 21.4 MAX 24 MIN 19 AC-FT 15520

06400875 HORSEHEAD CREEK AT OELRICHS, SD

LOCATION.--Lat 43°11'17", long 103°13'34", in SW¼SW¼SW¼SW¼ sec.7, T.10 S., R.8 E., Fall River County, Hydrologic Unit 10120106, on left bank on downstream side of bridge on Highway 18, 1.5 mi downstream from Lone Well Creek and 0.6 mi northeast of Oelrichs.

DRAINAGE AREA.--136 mi^2.

PERIOD OF RECORD.--June 1983 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,320 ft, from topographic map.

REMARKS.--Records good.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 402 ft^3/s Apr. 30, 1984 (gage height, 7.31 ft); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 402 ft^3/s at 2130 hours, Apr. 30 (gage height, 7.31 ft), no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.10	.10	.02	.59	358	1.1	.38	.00	.00
2	.00	.00	.00	.20	.08	.02	.59	245	1.0	.30	.00	.00
3	.00	.00	.00	.05	.06	.02	.62	161	1.1	.29	.00	.00
4	.00	.00	.00	.00	.06	.01	.65	161	1.3	.29	.00	.00
5	.00	.00	.00	.00	.05	.01	.59	205	2.3	.30	.00	.00
6	.00	.00	.00	.00	.05	.01	.71	153	3.3	.26	.00	.00
7	.00	.00	.00	.01	.06	.01	.88	109	2.3	.27	.00	.00
8	.00	.00	.00	.03	.06	.00	.78	72	1.7	.22	.00	.00
9	.00	.00	.00	.02	.06	.00	.61	51	2.3	.24	.00	.00
10	.00	.00	.00	.02	.06	.00	.52	21	3.6	.31	.00	.00
11	.00	.00	.00	.02	.06	.00	.46	13	2.1	.43	.00	.00
12	.00	.00	.00	.02	.07	.00	4.7	12	1.4	.33	.00	.00
13	.00	.00	.00	.02	.07	.02	1.9	24	.86	.26	.00	.00
14	.00	.00	.00	.02	.07	.04	1.0	19	.93	.19	.00	.00
15	.00	.00	.00	.02	.10	.06	1.4	9.0	40	.14	3.1	.00
16	.00	.00	.00	.02	.13	.09	2.1	5.1	42	.11	.00	.00
17	.00	.00	.00	.00	.13	.10	2.5	4.8	42	.08	.00	.00
18	.00	.00	.00	.00	.13	.10	2.1	2.5	26	.07	.00	.00
19	.00	.00	.00	.00	.13	.10	2.0	1.7	8.1	.05	.00	.00
20	.00	.00	.00	.00	.11	.10	1.8	1.4	4.1	.05	.00	.00
21	.00	.00	.00	.00	.10	.10	1.7	1.3	2.1	.03	.00	.00
22	.00	.00	.00	.00	.10	.10	1.3	1.3	1.6	.01	.00	.00
23	.00	.00	.00	.00	.10	.10	.93	1.3	1.4	.00	.00	.00
24	.00	.00	.00	.01	.10	.10	.83	1.3	1.3	.00	.00	.00
25	.00	.00	.00	.02	.10	.11	.93	1.4	1.1	.00	.00	.00
26	.00	.00	.00	.02	.09	.14	4.4	1.4	1.0	.00	.00	.00
27	.00	.00	.00	.13	.06	.20	7.2	1.5	.86	.00	.00	.00
28	.00	.00	.00	.12	.02	.21	42	1.5	.67	.00	.00	.00
29	.00	.00	.00	.20	.01	.21	86	1.4	.51	.00	.00	.00
30	.00	.00	.00	.25	---	.21	322	1.2	.43	.00	.00	.00
31	.00	---	.00	.12	---	.52	---	1.1	---	.00	.00	---
TOTAL	.00	.00	.00	1.42	2.32	2.71	493.79	1643.2	198.46	4.63	3.10	.00
MEAN	.00	.00	.00	.05	.08	.09	16.5	53.0	6.62	.15	.10	.00
MAX	.00	.00	.00	.25	.13	.52	322	358	42	.43	3.1	.00
MIN	.00	.00	.00	.00	.01	.00	.46	1.1	.43	.00	.00	.00
AC-FT	.0	.00	.00	2.8	4.6	5.4	979	3260	394	9.2	6.1	.00

WTR YR 1984 TOTAL 2349.63 MEAN 6.42 MAX 358 MIN .00 AC-FT 4660

06401000 ANGOSTURA RESERVOIR NEAR HOT SPRINGS, SD

LOCATION.--Lat 43°20'35", long 103°26'16", in SW¼NW¼ sec.20, T.8 S., R.6 E., Fall River County, Hydrologic Unit 10120106, at dam on Cheyenne River, 6.5 mi southeast of Hot Springs.

DRAINAGE AREA.--9,100 mi² (23,570 km²), approximately.

PERIOD OF RECORD.--October 1949 to current year (monthend contents only).

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Aug. 26, 1965, nonrecording gage at same site and datum.

REMARKS.--Reservoir formed by concrete gravity dam with earth embankment with gated concrete gravity spillway section. Storage began Oct. 3, 1949; dam completed December 1949. Conservation capacity, 82,443 acre-ft between elevations 3,139.75 ft (invert of lowest outlet) and 3,187.2 ft (top of spillway gates). Dead storage below elevation 3,139.75 ft, 8,598 acre-ft. Figures given herein represent contents above elevation 3,139.75 ft. Water is stored for irrigation.

COOPERATION.--Records of elevations, contents, and diversion to Angostura project furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 145,200 acre-ft June 18, 1962 (elevation, 3,189.00 ft); minimum observed since normal operating level reached, 45,350 acre-ft Sept. 28, 1960 (elevation, 3,162.90 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 121,985 acre-ft May 6 (elevation, 3,187.16 ft); minimum, 85,340 acre-ft Sept. 27-30 (elevation, 3,178.28 ft).

MONTHEND ELEVATION, IN FEET NGVD, AND CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

Date	Elevation	Contents	Change in contents	†Diversions
Sept. 30	3179.60	90284		
Oct. 31	3180.14	92361	+2077	
Nov. 30	3180.64	94310	+1949	
Dec. 31	3181.09	96085	+1775	
CAL YR 1983			-16672	
Jan. 31	3181.64	98280	+2195	
Feb. 29	3183.64	106508	+8228	
Mar. 31	3136.97	121112	+14604	
Apr. 30	3187.08	121617	+505	
May 31	3187.06	121525	-92	2304
June 30	3186.93	120929	-596	2024
July 31	3183.97	107903	-13026	12886
Aug. 31	3180.32	93060	-14843	15645
Sept. 30	3178.28	85340	-7720	7926
WTR YR 1984			-4944	

† Diversions from Angostura irrigation project.

06401500 CHEYENNE RIVER BELOW ANGOSTURA DAM, SD

LOCATION.--Lat 43°20'42", long 103°26'12", in NE¼NW¼NW¼ sec.20, T.8 S., R.6 E., Fall River County, Hydrologic Unit 10120109, on right bank 800 ft downstream from Angostura Dam, 4.8 mi upstream from Fall River and 6.5 mi southeast of Hot Springs.

DRAINAGE AREA.--9,100 mi², approximately.

PERIOD OF RECORD.--October 1945 to current year, seasonal records only beginning October 1978. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1946(M). WDR SD-78-1: 1962(M), 1967(M), 1971(M).

GAGE.--Water-stage recorder. Datum of gage is 3,058.02 ft National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark). Prior to Oct. 17, 1946, nonrecording gage and Oct. 17, 1946, to July 7, 1953, water-stage recorder at site 4.8 mi downstream at different datum.

REMARKS.--Records good. Flow regulated by Angostura Reservoir 800 ft upstream since October 1949 (see station 06401000).

AVERAGE DISCHARGE.--33 years (water years 1945-78), 78.5 ft³/s (56,870 acre-ft/yr); median of yearly mean discharges, 52 ft³/s (37,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,300 ft³/s May 20, 1978 (gage height, 15.97 ft), from rating curve extended above 12,000 ft³/s; no flow Oct. 9, 1949, to Feb. 5, 1950, Apr. 28, Aug. 26, 30, 1951.

EXTREMES FOR CURRENT PERIOD.--Maximum discharge, 2,300 ft³/s at 2000 hours, June 16 (gage height, 6.94 ft); minimum daily, 1.1 ft³/s Feb. 1-7, Mar. 14, 17, 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1					1.1	1.9	109	1000	117	3.0		
2					1.1	1.7	168	1420	60	3.0		
3					1.1	1.7	238	1950	25	3.0		
4					1.1	1.7	127	1990	28	3.0		
5					1.1	1.6	97	1560	41	3.0		
6					1.1	1.6	96	1550	91	3.0		
7					1.1	1.6	92	1630	64	3.0		
8					1.2	1.6	90	1170	43	3.0		
9					1.5	1.4	141	877	88	3.0		
10					1.5	1.3	147	659	119	3.0		
11					1.5	1.3	127	658	89	2.9		
12					1.5	1.3	101	445	101	2.9		
13					1.5	1.2	27	466	81	2.9		
14					1.6	1.1	27	334	191	2.9		
15					2.3	1.3	19	339	527	2.8		
16					2.2	1.3	19	271	1400	2.8		
17					2.2	1.1	18	212	1370	2.9		
18					2.2	1.1	38	125	617	2.9		
19					2.1	32	66	141	438	2.9		
20					2.1	63	25	94	476	2.9		
21					2.1	74	2.4	168	284	2.6		
22					2.0	67	12	155	229	2.4		
23					2.0	266	48	74	126	2.4		
24					2.1	508	51	22	110	2.5		
25					2.2	443	424	98	79	2.4		
26					2.2	251	431	71	85	2.4		
27					2.1	194	308	89	46	2.4		
28					2.1	249	183	70	22	2.3		
29					1.9	309	314	45	4.0	2.1		
30					---	112	418	69	4.0	2.2		
31					---	86	---	136	---	2.3		
TOTAL					49.8	2679.8	3963.4	17888	6955.0	84.8		
MEAN					1.72	86.4	132	577	232	2.74		
MAX					2.3	508	431	1990	1400	3.0		
MIN					1.1	1.1	2.4	22	4.0	2.1		
AC-FT					99	5320	7860	35480	13800	168		

06402000 FALL RIVER AT HOT SPRINGS, SD

LOCATION.--Lat 43°25'50", long 103°28'33", in NW¼NW¼ sec.24, T.7 S., R.5 E., Fall River County, Hydrologic Unit 10120109, on left bank at intersection of River Street and University Avenue in Hot Springs and 6.0 mi upstream from mouth.

DRAINAGE AREA.--137 mi².

PERIOD OF RECORD.--October 1937 to current year. Monthly discharge only for October 1937, published in WSP 1309.

REVISED RECORDS.--WSP 1279: 1938, 1941(M), 1947(M). WSP 1729: 1959(M).

GAGE.--Water-stage recorder. Datum of gage is 3,413.20 ft National Geodetic Vertical Datum of 1929. Prior to June 2, 1939, nonrecording gage at site 300 ft upstream at datum 3.00 ft higher.

REMARKS.--Records good. No gage-height record Dec. 8 to Jan. 10, May 2 to June 6, and June 8 to July 17. Flow regulated by Coldbrook Reservoir, capacity, 7,200 acre-ft, beginning September 1952, and Cottonwood Springs Lake, capacity, 8,385 acre-ft since June 1969. Some diversion above station for municipal supply of Hot Springs. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--47 years, 24.9 ft³/s (18,040 acre-ft/yr). The figure published in the 1983 report was in error; the correct figure is 46 years, 24.9 ft³/s (18,040 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,100 ft³/s Sept. 4, 1938 (gage height, 18.4 ft), site and datum then in use, from rating curve extended above 51 ft³/s on basis of weir formula and slope-area measurement of peak flow; minimum, 4.0 ft³/s Sept. 23, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum discharge observed, 226 ft³/s Oct. 3 (gage height, 3.20 ft), from floodmark; minimum daily discharge, 16 ft³/s Oct. 1, 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	23	20	19	21	21	21	22	24	22	21	22
2	16	21	20	19	21	21	22	21	25	22	21	22
3	24	24	20	19	21	21	22	21	26	22	21	22
4	19	24	20	19	21	21	22	21	26	24	21	22
5	18	24	20	19	21	21	22	21	26	23	21	23
6	18	23	20	19	21	21	22	21	26	22	21	23
7	19	23	20	19	21	21	22	21	25	22	22	23
8	21	23	20	19	21	21	22	21	25	22	22	23
9	20	23	20	19	21	21	22	21	24	22	22	23
10	22	23	20	19	21	21	22	21	24	23	22	23
11	21	23	20	19	21	21	22	21	24	23	22	23
12	20	23	20	19	21	21	22	21	23	22	22	23
13	20	22	20	19	21	21	22	21	23	21	22	23
14	23	22	20	19	21	21	22	21	23	21	22	23
15	22	22	20	19	21	21	22	21	23	21	22	23
16	20	22	20	19	21	21	22	21	24	21	22	23
17	22	22	20	19	21	21	22	21	22	21	22	23
18	22	22	20	19	21	21	22	21	22	21	22	24
19	23	21	20	19	21	21	22	21	22	21	22	24
20	22	21	20	20	21	21	22	22	22	21	22	24
21	23	21	20	20	21	21	22	22	22	21	22	24
22	24	21	20	20	21	21	22	22	22	21	22	24
23	20	20	20	20	21	21	22	21	22	21	22	24
24	20	20	19	20	21	21	22	22	22	21	22	24
25	23	20	19	20	21	21	22	23	22	21	22	24
26	23	20	19	20	21	21	23	23	22	21	22	25
27	24	20	19	20	21	21	24	23	22	21	22	25
28	22	20	19	20	21	21	25	23	22	21	22	25
29	22	20	19	20	21	21	25	23	22	21	22	25
30	22	20	19	20	---	21	24	24	22	21	22	25
31	21	---	19	21	---	21	---	24	---	23	22	---
TOTAL	652	653	612	602	609	651	670	672	699	670	676	704
MEAN	21.0	21.8	19.7	19.4	21.0	21.0	22.3	21.7	23.3	21.6	21.8	23.5
MAX	24	24	20	21	21	21	25	24	26	24	22	25
MIN	16	20	19	19	21	21	21	21	22	21	21	22
AC-FT	129	1300	1210	1190	1210	1290	1330	1330	1390	1330	1340	1400

CAL YR 1983 TOTAL 7616 MEAN 20.9 MAX 35 MIN 14 AC-FT 15110
WTR YR 1984 TOTAL 7870 MEAN 21.5 MAX 26 MIN 16 AC-FT 15610

06402500 BEAVER CREEK NEAR BUFFALO GAP, SD

LOCATION.--Lat 43°27'56", long 103°18'22", in SE¼SE¼ sec.5, T.7 S., R.7 E., Fall River County, Hydrologic Unit 10120109, on left bank 1.5 mi south of Buffalo Gap and 4.5 mi upstream from mouth.

DRAINAGE AREA.--130 mi^2, approximately.

PERIOD OF RECORD.--October 1937 to current year. Monthly discharge only for October, November, 1937, published in WSP 1309.

REVISED RECORDS.--WSP 956: 1941. WSP 1309: 1939-40(M), 1947(M).

GAGE.--Water-stage recorder. Altitude of gage is 3,150 ft, from topographic map. Prior to June 20, 1939, nonrecording gage at site 0.8 mi downstream at different datum.

REMARKS.--Records good except those for winter period, Dec. 16 to Jan. 1, which are poor. Nearly all flow is diverted above station during irrigation season. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--47 years, 7.07 ft^3/s (5,120 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,700 ft^3/s Sept. 4, 1938 (gage height, 16.46 ft), site and datum then in use, from rating curve extended above 11 ft^3/s on basis of slope-area measurement of peak flow; no flow at times in some years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1927 reached a stage of 18.0 ft, former site and datum, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 21 ft^3/s at 0200 hours, June 14 (gage height, 4.50 ft); maximum gage height, 5.03 ft Dec. 30 (backwater from ice); no peak above base of 24 ft^3/s; minimum daily discharge, 0.30 ft^3/s Aug. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	6.3	9.7	9.5	11	9.1	8.7	10	9.5	9.8	9.1	7.8
2	4.6	8.9	9.8	9.9	9.2	9.1	8.8	10	9.6	9.9	6.6	7.7
3	5.3	8.7	9.5	10	9.7	9.1	9.4	10	9.1	11	2.4	7.7
4	5.2	6.6	9.7	12	9.8	8.9	9.2	9.9	10	11	.50	7.6
5	5.1	6.6	9.6	13	9.9	8.6	8.9	9.7	9.3	10	.30	7.6
6	5.1	6.8	9.5	11	9.8	8.8	8.8	9.8	9.8	11	1.4	7.5
7	5.0	6.8	9.3	11	9.9	8.8	8.6	11	9.5	11	2.3	7.4
8	5.4	8.3	9.2	11	10	8.7	8.6	11	9.4	12	1.9	7.4
9	5.5	10	9.5	11	10	8.9	8.6	11	11	12	2.1	7.3
10	5.5	9.9	9.8	11	9.9	8.9	8.3	11	10	12	2.2	7.2
11	5.7	9.8	9.9	11	9.8	9.1	8.6	10	10	12	2.2	7.2
12	5.8	9.8	9.8	11	9.7	9.0	8.5	9.9	9.5	11	2.1	7.2
13	5.7	9.8	9.8	11	9.5	9.0	8.4	9.5	10	11	2.0	7.0
14	5.4	9.8	9.8	11	9.6	9.0	8.5	9.6	17	11	2.0	7.3
15	5.6	9.5	9.8	14	9.7	9.1	8.6	9.5	11	12	2.0	7.3
16	6.0	9.6	9.7	11	9.2	9.0	8.7	9.4	12	11	2.1	7.5
17	7.3	9.7	9.5	11	9.2	9.0	8.8	9.3	11	10	2.2	7.8
18	7.5	9.6	9.2	11	9.2	9.1	9.0	9.2	11	9.9	5.2	7.6
19	7.7	9.7	9.0	11	9.2	8.6	9.3	9.3	10	9.8	7.1	7.5
20	7.8	9.7	8.5	11	9.1	7.3	9.7	9.2	10	9.8	7.7	7.3
21	7.8	9.7	8.0	11	9.2	7.5	9.9	9.6	10	9.6	8.2	7.5
22	7.8	9.8	7.6	11	9.1	7.6	10	9.5	9.9	9.5	8.1	7.7
23	7.8	9.7	7.4	11	9.1	7.7	10	8.2	10	9.5	8.0	7.7
24	6.1	9.7	7.0	11	9.2	7.6	10	8.7	10	9.8	8.0	8.1
25	4.0	9.7	7.4	12	9.1	8.0	10	9.6	10	9.9	7.9	8.2
26	4.0	9.7	7.6	12	9.2	8.0	10	9.3	10	9.5	7.9	8.1
27	4.2	9.7	8.0	11	9.1	9.2	10	10	10	9.4	7.7	8.0
28	4.3	9.7	7.8	11	9.0	9.2	11	9.6	10	9.2	7.5	8.1
29	4.3	9.6	7.8	11	9.1	8.8	11	9.3	9.9	8.8	7.4	8.1
30	4.3	9.6	8.0	11	---	8.3	11	9.2	9.6	9.0	7.5	8.1
31	5.0	---	9.0	11	---	8.5	---	9.2	---	9.1	7.8	---
TOTAL	172.5	272.8	276.2	345.4	275.5	267.5	278.9	300.5	308.1	320.5	149.40	228.5
MEAN	5.56	9.09	8.91	11.1	9.50	8.63	9.30	9.69	10.3	10.3	4.82	7.62
MAX	7.8	10	9.9	14	11	9.2	11	11	17	12	9.1	8.2
MIN	1.7	6.3	7.0	9.5	9.0	7.3	8.3	8.2	9.1	8.8	.30	7.0
AC-FT	34	541	548	685	546	531	553	596	611	636	296	453

CAL YR 1983 TOTAL 2099.59 MEAN 5.75 MAX 11 MIN .27 AC-FT 4160
WTR YR 1984 TOTAL 3195.80 MEAN 8.73 MAX 17 MIN .30 AC-FT 6340

06403300 FRENCH CREEK ABOVE FAIRBURN, SD

LOCATION.--Lat 43°43'02", long 103°22'03", in SW¼SW¼NE¼ sec.11, T.4 S., R.6 E., Custer County, Hydrologic Unit 10120109, on right bank 500 ft upstream from concrete diversion dam, 1.0 mi southwest of landing strip in Custer State Park, 1.5 mi west of east boundary of Custer State Park, 2.6 mi southwest of abandoned Fairview School, and 3.5 mi southeast of Custer State Park Headquarters.

DRAINAGE AREA.--105 mi^2, approximately.

PERIOD OF RECORD.--April 1982 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,850 ft, from topographic map.

REMARKS.--Records good except those for winter period, Nov. 28 to Feb. 6, which are poor. Flow regulated by Stockade Reservoir, capacity, 1,820 acre-ft, 21 mi upstream. Several observations of water temperature and specific conductance were made.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 194 ft^3/s June 24, 1982 (gage height, 2.21 ft); minimum daily, 0.90 ft^3/s Dec. 23, 1983.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 166 ft^3/s at 2145 hours, July 15 (gage height, 2.10 ft); minimum daily, 0.90 ft^3/s Dec. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	1.8	1.6	1.5	1.7	3.0	4.6	10	12	12	36	4.0
2	12	1.9	1.7	1.6	1.7	3.2	6.4	13	14	12	24	4.2
3	15	1.8	2.0	1.7	1.8	3.3	7.8	14	14	14	18	4.0
4	13	1.8	2.0	1.8	1.8	3.9	11	27	15	19	24	3.7
5	12	1.9	1.8	2.0	1.8	4.5	8.3	44	17	14	23	3.4
6	12	1.7	1.7	1.9	1.9	4.5	8.4	41	17	11	17	3.3
7	11	1.7	1.6	1.8	1.9	4.0	18	37	19	9.5	13	3.0
8	5.6	2.1	1.6	1.8	1.9	4.0	25	35	15	13	11	2.7
9	3.5	2.0	1.6	1.7	2.0	3.4	21	36	15	22	9.2	2.8
10	2.7	2.1	1.6	1.6	2.3	4.2	18	37	56	35	8.1	2.6
11	2.6	1.9	1.7	1.5	2.0	3.6	16	37	85	45	7.2	2.6
12	2.5	1.9	1.7	1.4	2.1	3.5	14	34	84	29	6.4	3.0
13	2.3	1.9	1.7	1.3	2.2	3.8	12	28	56	21	6.0	2.7
14	2.3	1.9	1.7	1.2	2.4	4.0	11	25	45	15	5.6	3.0
15	2.6	1.9	1.7	1.1	2.2	4.5	8.3	23	56	63	5.1	3.2
16	2.5	1.9	1.6	1.0	2.1	7.4	7.1	21	58	109	5.1	3.9
17	2.5	1.9	1.6	1.0	2.2	11	6.7	18	44	50	4.7	4.2
18	2.3	1.9	1.5	1.0	1.8	8.7	6.7	15	43	30	5.1	4.7
19	2.2	1.7	1.6	1.0	1.7	6.9	6.5	13	39	22	6.1	4.5
20	2.1	1.7	1.4	1.0	2.7	7.5	6.1	12	41	18	8.5	4.2
21	2.0	1.8	1.3	1.1	2.1	6.4	6.4	13	36	16	8.4	4.0
22	2.1	1.9	1.1	1.1	2.3	6.6	7.9	16	33	15	7.8	3.7
23	2.1	1.9	.90	1.2	2.4	6.0	7.5	15	27	15	7.2	3.8
24	2.0	2.4	1.0	1.2	2.5	5.9	6.1	15	24	15	6.7	4.1
25	2.1	1.8	1.0	1.3	2.6	6.2	7.0	24	21	16	17	4.3
26	2.1	2.3	1.1	1.3	2.7	6.9	7.0	25	19	15	13	4.5
27	2.1	1.8	1.2	1.4	2.9	7.8	8.0	22	17	24	8.4	4.6
28	1.9	1.7	1.3	1.4	2.9	8.0	8.0	23	15	20	6.8	4.7
29	1.9	1.6	1.2	1.5	2.9	6.4	7.0	19	13	14	5.5	4.8
30	1.8	1.5	1.3	1.5	---	5.5	6.5	17	12	12	4.7	5.0
31	1.9	---	1.4	1.7	---	4.9	---	14	---	26	4.2	---
TOTAL	143.7	56.1	46.20	43.6	63.5	169.5	294.3	723	962	751.5	332.8	113.2
MEAN	4.64	1.87	1.49	1.41	2.19	5.47	9.81	23.3	32.1	24.2	10.7	3.77
MAX	15	2.4	2.0	2.0	2.9	11	25	44	85	109	36	5.0
MIN	1.8	1.5	.90	1.0	1.7	3.0	4.6	10	12	9.5	4.2	2.6
AC-FT	28	111	92	86	126	336	584	1430	1910	1490	660	225

CAL YR 1983	TOTAL	2288.07	MEAN	6.27	MAX	33	MIN	.90	AC-FT	4540
WTR YR 1984	TOTAL	3699.40	MEAN	10.1	MAX	109	MIN	.90	AC-FT	7340

BEST COPY AVAILABLE

06404000 BATTLE CREEK NEAR KEYSTONE, SD

LOCATION.--Lat 43°52'21", long 103°20'10", in SW¼SW¼ sec.18, T.2 S., R.7 E., Pennington County, Hydrologic Unit 10120109, at right downstream end county highway bridge, 0.6 mi downstream from Iron Creek and 4.5 mi southeast of Keystone.

DRAINAGE AREA.--66 mi^2.

PERIOD OF RECORD.--July 1945 to July 1947, October 1961 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,800 ft, from topographic map. Prior to Nov. 13, 1961, nonrecording gage at site 250 ft downstream at different datum and Nov. 13 to Dec. 5, 1961, at same site at present datum. Dec. 6, 1961, to June 9, 1972, water-stage recorder at site 210 ft downstream at present datum (destroyed by flood); June 10 to Nov. 20, 1972, nonrecording gage 180 ft downstream at present datum; Nov. 21, 1972, to Nov. 27, 1973, water-stage recorder at present site and datum; Nov. 28, 1973, to Nov. 7, 1974, nonrecording gage 180 ft downstream at present datum.

REMARKS.--Records good except those for winter period, Nov. 26 to Jan. 12, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--24 years (water years 1946, 1962-84), 9.17 ft^3/s (6,640 acre-ft/yr); median of yearly mean discharges, 7.4 ft^3/s (5,400 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,200 ft^3/s June 9, 1972 (gage height, 14.5 ft), from floodmarks, site then in use, from rating curve extended above 550 ft^3/s on basis of slope-area measurement of peak flow; no flow for some days in 1961, 1962, 1970, 1974, 1976, 1980, 1981, 1982, 1983, 1984.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
June 11	1200	*327	*4.72	June 15	0445	260	4.56

No flow Oct. 1, 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.89	1.4	1.5	1.3	1.5	1.9	10	13	16	6.0	.28
2	.00	.90	1.4	1.8	1.3	1.8	2.3	9.1	13	16	5.7	.43
3	.10	.93	1.5	2.1	1.2	1.8	3.0	9.4	12	17	5.3	.41
4	.27	.94	1.5	2.4	1.2	1.8	3.0	22	18	17	5.9	.29
5	.16	.99	1.4	2.5	1.7	1.7	3.8	37	14	13	5.1	.29
6	.16	.98	1.4	2.5	1.8	1.6	5.6	29	16	11	4.5	.26
7	.22	.95	1.3	2.4	2.1	1.2	9.5	33	15	11	4.3	.22
8	.35	1.3	1.3	2.4	2.2	.90	10	32	12	13	3.8	.26
9	.38	1.3	1.4	2.3	2.3	1.0	9.3	39	28	15	3.3	.23
10	.65	1.2	1.5	2.3	2.8	1.1	8.4	46	131	20	3.0	.24
11	.92	1.2	1.6	2.2	1.3	1.3	7.8	38	204	16	2.8	.27
12	.80	1.3	1.6	2.0	2.3	1.5	6.1	33	132	12	2.8	.30
13	.80	1.4	1.7	1.9	2.2	1.8	5.2	31	91	12	2.5	.31
14	.80	1.5	1.7	1.7	1.5	2.6	5.0	30	76	12	2.1	.42
15	1.2	1.5	1.7	1.7	1.6	3.1	4.6	31	165	13	1.8	.45
16	1.1	1.6	1.5	1.6	2.1	2.4	4.2	27	84	20	1.9	.51
17	1.0	1.8	1.3	1.6	1.9	2.6	4.0	22	67	24	2.6	.73
18	1.1	1.8	1.1	1.6	1.5	2.4	4.0	16	61	18	2.9	.64
19	1.1	1.4	.90	1.6	1.5	2.5	3.9	15	50	16	2.2	.52
20	1.2	1.4	.80	2.3	1.7	2.3	3.7	13	57	14	2.1	.43
21	1.2	1.5	.70	2.2	1.4	2.1	3.5	14	50	13	2.1	.39
22	1.4	1.5	.70	2.1	1.7	2.0	3.4	14	39	11	2.0	.34
23	1.1	1.4	.60	.99	2.4	2.1	3.1	11	34	11	1.6	.44
24	1.0	1.4	.60	.78	1.8	2.2	2.8	12	31	11	1.3	.64
25	.98	1.5	.60	.69	1.8	2.3	5.0	19	28	9.7	1.6	.70
26	.97	1.5	.60	.95	1.4	2.3	6.4	18	25	8.5	1.3	.70
27	.91	1.5	.60	.98	1.5	2.3	5.2	22	22	7.3	.77	.70
28	.83	1.4	.70	1.4	1.2	2.5	5.5	22	19	6.4	.60	.83
29	.89	1.4	.74	1.9	1.4	2.2	7.5	19	18	5.8	.50	.86
30	.84	1.3	.80	1.9	---	2.0	8.0	17	16	5.4	.41	.86
31	.83	---	.90	1.4	---	1.9	---	14	---	5.8	.29	---
TOTAL	23.26	39.68	35.54	55.69	50.1	60.80	155.7	704.5	1541	400.9	83.07	13.95
MEAN	.75	1.32	1.15	1.80	1.73	1.96	5.19	22.7	51.4	12.9	2.68	.46
MAX	1.4	1.8	1.7	2.5	2.8	3.1	10	46	204	24	6.0	.86
MIN	.00	.89	.60	.69	1.2	.90	1.9	9.1	12	5.4	.29	.22
AC-FT	4	79	70	110	99	121	309	1400	3060	795	165	28

CAL YR 1983	TOTAL	1264.81	MEAN	3.47	MAX	56	MIN	.00	AC-FT	2510
WTR YR 1984	TOTAL	3164.19	MEAN	8.65	MAX	204	MIN	.00	AC-FT	6280

06404998 GRACE COOLIDGE CREEK NEAR GAME LODGE, NEAR CUSTER, SD

LOCATION.--Lat 43°45'40", long 103°21'49", in SW¼NE¼ sec.26, T.3 S., R.6 E., Custer County, Hydrologic Unit 10120109, on right bank 0.3 mi downstream from bridge on U.S. Highway 16A, 0.9 mi east of Game Lodge, 1.5 mi southwest of junction of State Highway 36 and U.S. Highway 16A, and 11.5 mi east of Custer.

DRAINAGE AREA.--25.2 mi^2.

PERIOD OF RECORD.--October 1976 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,100 ft, from topographic map.

REMARKS.--Records good except those for winter period and/or no gage-height record, Nov. 21 to Apr. 18, which are poor. Considerable losses in sinkholes downstream from gage. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--8 years, 3.36 ft^3/s (2,430 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 370 ft^3/s May 18, 1981 (gage height, 9.49 ft); maximum gage height, 12.76 ft Feb. 9, 1979 (backwater from ice); no flow June 5-9, July 6, 8, 11, 19, 1977, for part of June 14, 1979.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 10, 1972, reached a stage of 10.35 ft, from floodmarks, discharge, 709 ft^3/s from slope-area measurement of peak flow.

Flood of June 15, 1976, reached a stage of 10.90 ft, from floodmarks, discharge, 980 ft^3/s on basis of slope-area measurement of 10.35 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 25 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
a	unknown	unknown	*8.82	June 17	2045	26	7.77
May 10	0645	*41	8.03	July 15	2200	34	7.88
June 11	1700	39	7.95				

a About Dec. 23.
Minimum daily discharge, 0.19 ft^3/s Dec. 21, 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.48	1.1	.85	.90	.75	.60	1.0	6.2	8.2	6.9	6.5	2.0
2	.57	1.1	.95	1.2	.72	.62	1.5	5.7	7.7	7.5	5.6	1.8
3	1.1	1.1	1.2	1.5	.70	.64	2.0	5.7	7.3	7.0	5.3	1.7
4	.97	1.1	1.0	1.9	.70	.64	2.0	9.2	8.3	7.0	5.7	1.6
5	.74	1.1	1.0	2.0	.68	.62	1.5	15	7.6	6.4	4.8	1.6
6	.75	1.1	1.0	2.1	.68	.60	1.3	14	8.6	5.6	4.8	1.6
7	.73	1.1	1.0	1.8	.68	.55	1.3	17	7.7	5.3	4.5	1.4
8	.80	1.4	1.1	1.5	.68	.50	1.3	20	6.9	8.4	4.0	1.4
9	.78	1.2	1.2	1.1	.68	.55	1.4	28	11	7.3	3.7	1.3
10	.87	1.2	1.3	.80	.68	.60	1.5	33	17	12	3.5	1.3
11	1.1	1.2	1.3	.65	.68	.65	1.6	29	28	14	3.3	1.4
12	.91	1.3	1.2	.60	.68	.66	1.7	24	30	8.9	3.0	1.4
13	.87	1.3	1.1	.55	.66	.70	1.9	20	25	7.2	2.7	1.4
14	.93	1.2	1.0	.45	.64	.72	2.2	17	22	6.9	2.4	1.6
15	1.3	1.2	.90	.40	.64	.72	2.4	15	26	17	2.4	1.6
16	1.2	1.2	.50	.35	.66	.70	2.7	14	19	24	2.4	1.5
17	1.1	1.2	.35	.32	.66	.66	2.8	12	19	15	2.7	1.7
18	1.0	1.2	.25	.30	.70	.66	2.4	11	22	13	2.8	1.6
19	1.2	1.2	.21	.28	.80	.66	2.8	10	19	11	2.5	1.4
20	1.2	1.1	.20	.25	.90	.70	2.8	9.8	20	9.7	2.9	1.3
21	1.1	1.1	.19	.25	1.0	.76	2.8	10	17	8.8	3.0	1.3
22	1.1	1.1	.19	.28	1.0	.78	2.7	9.7	15	8.5	2.9	1.2
23	1.0	1.0	.20	.33	.90	.80	2.6	7.9	14	9.1	2.5	1.2
24	1.0	1.0	.25	.40	.80	.80	2.4	9.4	13	8.8	3.4	1.4
25	1.1	.95	.40	.70	.70	.76	2.0	13	11	8.1	5.3	1.5
26	1.1	.90	.60	.74	.60	.75	1.8	11	9.7	6.6	3.6	1.6
27	1.1	.85	.64	.70	.55	.74	1.8	12	9.3	6.6	2.9	1.6
28	1.1	.85	.52	.70	.50	.72	3.0	11	8.0	6.2	2.5	1.6
29	1.1	.80	.52	.70	.55	.70	4.5	9.2	7.8	5.7	2.2	1.6
30	1.1	.80	.55	.75	---	.70	5.0	8.0	6.6	5.6	2.0	1.6
31	1.1	---	.65	.80	---	.75	---	7.9	---	7.9	2.0	---
TOTAL	30.50	32.95	22.32	25.30	20.57	21.01	66.7	424.7	431.7	282.0	107.8	45.2
MEAN	.98	1.10	.72	.82	.71	.68	2.22	13.7	14.4	9.10	3.48	1.51
MAX	1.3	1.4	1.3	2.1	1.0	.80	5.0	33	30	24	6.5	2.0
MIN	.48	.80	.19	.25	.50	.50	1.0	5.7	6.6	5.3	2.0	1.2
AC-FT	6	65	44	50	41	42	132	842	856	559	214	90

CAL YR 1983 TOTAL 739.76 MEAN 2.03 MAX 13 MIN .18 AC-FT 1470
WTR YR 1984 TOTAL 1510.75 MEAN 4.13 MAX 33 MIN .19 AC-FT 3000

06406000 BATTLE CREEK AT HERMOSA, SD

LOCATION.--Lat 43°49'41", long 103°11'44", in NE¼SW¼SW¼ sec.32, T.2 S., R.8 E., Custer County, Hydrologic Unit 10120109, on right bank 50 ft downstream from Chicago and North Western Transportation Company bridge, 0.8 mi south of Hermosa and 2.9 mi downstream from Grace Coolidge Creek.

DRAINAGE AREA.--178 mi².

PERIOD OF RECORD.--August to December 1903 (gage heights only), July 1949 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,290 ft, from topographic map. Nonrecording gage, August to December 1903, at site 50 ft upstream, July 7, 1949, to Nov. 2, 1950, at site 0.5 mi upstream, Nov. 3, 1950, to Dec. 6, 1961, at site 170 ft downstream, all at different datum. Dec. 7, 1961, to June 10, 1972, water-stage recorder (destroyed by flood), and June 11, 1972, to Aug. 28, 1972, nonrecording gage at site 80 ft downstream at present datum.

REMARKS.--Records good. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--35 years, 9.16 ft³/s (6,640 acre-ft/yr); median of yearly mean discharges, 6.2 ft³/s (4,500 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,400 ft³/s June 10, 1972 (gage height, 17.72 ft), from floodmarks, from rating curve extended above 2,800 ft³/s on basis of contracted-opening and flow-over-railroad embankment measurement of peak flow; no flow at times in 1954-57, 1959.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
June 11	1645	*189	*4.84	June 15	1045	183	4.79

Minimum daily discharge, 2.6 ft³/s Feb. 5, 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.9	5.6	4.3	3.3	2.9	4.1	3.8	7.2	14	25	17	11
2	4.0	5.4	4.2	3.5	2.8	4.0	4.1	7.4	14	24	17	11
3	4.8	5.5	4.1	3.6	2.8	3.9	4.6	7.3	13	23	17	11
4	5.4	5.4	4.1	3.7	2.7	3.9	4.4	7.5	13	23	17	11
5	4.6	5.5	4.2	4.3	2.6	3.8	4.2	7.3	13	22	16	11
6	4.5	5.5	4.0	4.4	2.6	3.8	4.4	9.7	14	21	16	11
7	5.2	5.9	4.0	4.2	2.7	3.8	4.4	11	14	21	16	11
8	5.5	6.2	4.0	5.2	2.7	3.8	4.3	14	15	23	15	11
9	5.6	5.8	3.9	4.5	2.7	4.0	4.2	18	17	21	14	10
10	6.0	5.6	4.0	4.2	2.7	4.1	4.2	30	74	22	15	10
11	5.9	5.4	4.0	4.1	2.7	4.1	4.2	35	138	25	14	10
12	5.8	5.6	4.0	4.0	2.7	4.1	4.1	29	127	23	13	11
13	5.9	5.4	4.1	4.1	2.8	4.0	4.2	24	99	20	13	10
14	6.1	5.3	4.1	3.9	2.9	4.0	4.4	22	86	19	14	11
15	6.6	5.2	4.1	3.8	3.1	4.0	4.4	21	143	22	13	10
16	6.5	5.2	4.0	4.0	3.6	4.0	4.2	19	112	28	13	10
17	6.4	5.1	3.4	3.7	3.8	4.1	4.2	18	92	32	14	11
18	6.2	5.1	3.4	3.6	3.8	4.1	4.2	17	92	26	14	9.5
19	6.6	5.1	3.4	3.6	3.7	3.9	4.3	14	78	23	13	9.3
20	6.4	5.1	3.0	3.2	3.7	3.9	4.3	14	79	21	16	9.0
21	6.2	5.1	3.0	3.5	3.7	3.7	4.4	13	76	21	14	9.2
22	6.1	5.2	3.0	3.6	3.7	3.7	4.5	13	67	20	12	9.2
23	6.0	5.1	2.9	3.7	3.6	3.7	4.5	13	58	23	12	9.1
24	4.5	4.9	2.9	3.9	3.6	3.6	4.3	12	54	19	12	9.2
25	4.4	4.9	2.8	4.0	3.6	3.7	6.1	13	48	20	12	9.6
26	4.5	5.2	2.8	4.4	3.6	4.0	7.9	15	42	19	12	9.8
27	5.1	5.1	2.8	4.4	4.0	4.0	6.3	17	38	19	11	9.6
28	5.2	4.8	2.8	6.6	3.9	4.0	6.1	19	34	17	11	9.8
29	5.1	4.9	2.9	5.5	4.0	3.9	6.7	18	30	16	10	9.5
30	5.2	4.5	2.9	3.4	---	3.8	6.9	16	27	16	9.8	9.5
31	5.5	---	3.0	3.1	---	3.9	---	15	---	17	10	---
TOTAL	169.7	158.6	110.1	125.0	93.7	121.4	142.8	496.4	1721	671	422.8	303.3
MEAN	5.47	5.29	3.55	4.03	3.23	3.92	4.76	16.0	57.4	21.6	13.6	10.1
MAX	6.6	6.2	4.3	6.6	4.0	4.1	7.9	35	143	32	17	11
MIN	3.9	4.5	2.8	3.1	2.6	3.6	3.8	7.2	13	16	9.8	9.0
AC-FT	33	315	218	248	186	241	283	985	3410	1330	839	602

CAL YR 1983 TOTAL 2196.9 MEAN 6.02 MAX 26 MIN 2.3 AC-FT 4360
WTR YR 1984 TOTAL 4535.8 MEAN 12.4 MAX 143 MIN 2.6 AC-FT 9000

06408500 SPRING CREEK NEAR HERMOSA, SD

LOCATION.--Lat 43°56'31", long 103°09'32", in SE¼SE¼SE¼ sec.21, T.1 S., R.8 E., Pennington County, Hydrologic Unit 10120109, at left upstream end of county highway bridge, 0.3 mi upstream from Chicago and North Western Transportation Company bridge and 7.5 mi north of Hermosa.

DRAINAGE AREA.--199 mi².

PERIOD OF RECORD.--July 1949 to current year.

REVISED RECORDS.--WSP 1729: 1950.

GAGE.--Water-stage recorder. Datum of gage is 3,265.30 ft National Geodetic Vertical Datum of 1929. Prior to Mar. 30, 1973, nonrecording gage and crest-stage gage 210 ft upstream, and Mar. 30 to Sept. 30, 1973, water-stage recorder at present site, both at datum 2.00 ft higher.

REMARKS.--Records good except those for winter period and/or no gage-height record, Nov. 26 to Mar. 8, which are poor. Considerable loss in sinkholes in reach 10 to 15 mi above station. Flow slightly regulated by Lake Sheridan, capacity, 12,657 acre-ft, 24 mi above station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--35 years, 5.08 ft³/s (3,680 acre-ft/yr); median of yearly mean discharges, 1.6 ft³/s (1,200 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,400 ft³/s June 10, 1972 (gage height, 13.12 ft), site and datum then in use, from floodmarks, from rating curve extended above 350 ft³/s on basis of contracted-opening measurement of peak flow; no flow for many days most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 247 ft³/s at 2100 hours, June 15 (gage height, 6.10 ft, backwater from debris); minimum daily discharge, 0.01 ft³/s Apr. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	2.5	1.9	1.7	2.1	1.9	.26	5.3	2.5	19	3.3	2.7
2	2.4	2.4	1.9	1.8	2.0	1.8	.54	3.4	2.7	18	3.5	2.7
3	3.6	2.4	2.3	2.0	2.0	1.8	.58	3.7	2.7	17	3.6	2.9
4	2.4	2.4	2.2	2.1	1.9	1.8	.28	8.1	3.3	16	3.8	2.9
5	1.8	2.4	2.2	2.3	1.9	1.8	.16	5.0	4.1	15	3.5	2.9
6	2.1	2.4	2.3	2.3	1.9	1.8	.14	3.8	3.4	14	3.4	2.9
7	2.3	2.4	2.3	2.4	1.9	1.8	.11	5.0	3.3	14	3.6	2.8
8	2.4	2.5	2.3	2.4	1.9	1.8	.01	3.3	4.1	13	3.2	2.8
9	2.3	2.4	2.2	2.4	1.9	1.5	.05	3.2	6.3	13	3.0	2.7
10	2.5	2.3	2.1	2.3	1.9	1.5	.05	3.0	8.3	12	3.1	3.8
11	2.4	2.3	2.0	2.3	1.9	1.3	.09	2.8	11	12	3.1	3.6
12	2.2	2.2	2.0	2.3	1.9	1.3	.09	2.7	13	11	3.0	3.6
13	2.3	2.2	2.0	2.2	1.9	1.2	.04	2.6	61	11	2.6	3.2
14	2.5	2.2	2.0	2.2	2.0	1.1	.24	2.4	81	10	2.4	3.3
15	2.9	2.2	2.0	2.1	2.0	.99	.38	2.4	136	10	2.5	3.2
16	2.4	2.2	2.0	2.0	2.0	.81	.76	2.3	135	10	3.1	3.4
17	2.3	2.2	1.9	2.0	2.1	.82	1.2	2.2	135	9.0	3.6	3.4
18	2.4	2.4	1.9	2.0	2.1	.75	1.5	2.2	100	9.0	3.3	3.3
19	2.4	2.4	1.8	1.9	2.1	1.0	1.5	2.1	70	8.0	3.0	3.2
20	2.6	2.4	1.8	1.9	2.0	.90	1.6	2.2	65	7.5	3.0	2.7
21	2.6	1.8	1.7	1.9	2.0	.82	1.5	2.3	62	6.2	2.8	2.6
22	2.6	2.2	1.7	2.0	2.0	1.2	1.6	2.1	62	5.2	2.8	2.9
23	2.5	2.0	1.6	2.0	2.0	1.2	1.6	2.1	58	5.0	2.9	3.1
24	2.3	2.2	1.6	2.0	2.0	1.2	1.5	2.3	56	4.1	2.4	3.4
25	2.3	2.0	1.5	2.1	1.9	.66	2.8	2.4	40	4.0	2.6	3.8
26	2.3	2.0	1.5	2.1	1.9	.57	3.4	2.4	35	3.9	2.6	3.7
27	2.3	2.0	1.5	2.1	1.9	.66	8.2	3.0	30	3.2	2.4	3.4
28	2.3	2.0	1.5	2.3	1.7	.82	3.1	2.6	25	3.2	2.3	3.3
29	2.4	2.0	1.6	2.2	1.8	.55	2.5	2.4	22	3.1	2.6	3.2
30	2.4	1.9	1.6	2.2	---	.40	2.5	2.5	20	2.8	2.7	3.2
31	2.5	---	1.7	2.1	---	.30	---	2.5	---	2.6	2.6	---
TOTAL	74.9	66.9	58.6	65.6	56.6	36.05	38.28	94.3	1257.7	291.8	92.3	94.6
MEAN	2.42	2.23	1.89	2.12	1.95	1.16	1.28	3.04	41.9	9.41	2.98	3.15
MAX	3.6	2.5	2.3	2.4	2.1	1.9	8.2	8.1	136	19	3.8	3.8
MIN	1.8	1.8	1.5	1.7	1.7	.30	.01	2.1	2.5	2.6	2.3	2.6
AC-FT	14	133	116	130	112	72	76	187	2490	579	183	188

CAL YR 1983 TOTAL 756.41 MEAN 2.07 MAX 37 MIN .13 AC-FT 1500
WTR YR 1984 TOTAL 2227.63 MEAN 6.09 MAX 136 MIN .01 AC-FT 4420

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06408700 RHOADS FORK NEAR ROCHFORD, SD

LOCATION.--Lat 44°08'12", long 103°51'29", in NW¼SE¼NE¼ sec.15, T.2 N., R.2 E., Pennington County, Hydrologic Unit 10120110, on left bank 1.1 mi upstream from South Fork Rapid Creek and 8.7 mi west of Rochford.

DRAINAGE AREA.--7.95 mi^2, approximately.

PERIOD OF RECORD.--November 1981 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 5,965 ft, from topographic map.

REMARKS.--Records good. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8.9 ft^3/s June 23, 1982 (gage height, 2.17 ft); maximum gage height, 2.19 ft July 23 (backwater from vegetation); minimum daily discharge, 3.5 ft^3/s Jan. 10, 1982.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9.2 ft^3/s at 0030 hours, Aug. 8 (gage height, 1.97 ft); maximum gage height, 2.06 ft Oct. 8 (backwater from vegetation); minimum daily discharge, 6.0 ft^3/s Dec. 24, Jan. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.0	7.3	7.0	6.1	7.1	7.1	6.8	7.5	6.8	6.9	6.9	6.4
2	7.2	7.1	6.1	6.2	7.3	7.2	6.8	7.6	6.7	6.8	7.0	6.7
3	7.3	7.1	6.9	6.3	7.3	7.3	6.9	7.5	6.7	6.8	7.0	6.7
4	7.4	7.5	6.9	6.4	7.3	7.1	6.9	7.6	6.8	6.9	6.9	6.8
5	7.3	7.4	7.0	6.4	7.5	7.1	6.9	7.6	6.8	7.2	6.9	6.6
6	7.4	7.4	6.8	6.4	7.6	7.1	6.9	7.2	6.7	7.3	7.0	6.4
7	7.3	7.4	6.9	6.5	7.6	7.0	6.9	7.1	6.7	7.3	7.3	6.5
8	7.9	7.6	6.8	6.6	7.3	7.1	6.9	7.2	6.7	7.4	7.0	6.6
9	8.4	7.7	6.8	6.5	7.3	6.9	6.9	7.5	6.9	6.9	7.0	6.6
10	8.4	7.6	6.8	6.3	7.2	7.0	6.9	7.4	6.8	7.0	7.1	6.3
11	8.4	7.5	6.8	6.3	7.3	6.9	6.9	7.2	6.8	7.0	6.9	6.2
12	8.4	7.7	6.9	6.3	7.2	6.9	6.9	7.3	6.7	6.9	7.1	6.2
13	8.3	7.9	6.7	6.4	7.3	6.9	6.9	7.2	6.7	6.9	6.9	6.4
14	8.2	7.9	6.8	6.4	7.1	6.9	6.9	7.1	6.8	6.9	7.1	6.5
15	8.2	7.8	6.5	6.4	6.9	7.0	6.9	7.2	6.7	6.9	7.6	6.4
16	8.2	7.5	6.4	6.0	6.9	6.9	6.9	7.4	6.6	6.8	7.1	6.3
17	8.0	7.4	6.4	6.4	6.9	6.7	6.9	7.3	6.8	6.8	7.0	6.3
18	8.0	7.4	6.4	6.5	6.9	6.7	6.9	7.3	6.8	6.8	7.0	6.3
19	8.2	7.4	6.3	6.5	6.9	6.9	6.9	7.2	6.8	6.8	6.7	6.4
20	8.0	7.4	6.4	6.6	6.8	7.0	6.9	7.1	6.8	6.7	6.7	6.4
21	7.7	7.3	6.2	6.6	7.1	6.9	6.9	7.1	6.8	6.7	6.7	6.7
22	7.6	7.3	6.2	6.7	7.1	6.7	6.9	7.1	6.6	6.7	6.5	6.7
23	7.6	7.3	6.1	6.8	7.4	6.7	6.9	6.9	6.6	6.7	6.6	6.8
24	7.6	7.3	6.0	6.7	7.9	6.7	6.9	6.8	6.5	6.7	6.7	6.9
25	7.5	7.3	6.2	6.7	7.7	6.7	7.0	6.8	6.5	6.8	6.7	6.7
26	7.5	7.2	6.3	6.8	7.1	6.7	7.3	6.8	6.6	6.8	6.7	6.4
27	7.5	7.4	6.3	6.8	7.1	6.7	7.3	6.9	6.5	6.6	7.1	6.6
28	7.4	7.4	6.2	6.9	7.1	6.7	7.4	6.7	6.7	6.5	6.7	6.1
29	7.4	7.4	6.2	6.9	7.1	6.7	7.4	6.7	6.8	6.7	6.6	6.2
30	7.3	7.1	6.1	7.1	---	6.8	7.4	6.7	6.8	7.0	6.7	6.6
31	7.3	---	6.2	7.1	---	6.8	---	6.6	---	7.1	6.7	---
TOTAL	239.9	223.0	201.6	202.6	209.3	213.8	209.2	221.6	201.5	213.3	213.9	194.7
MEAN	7.74	7.43	6.50	6.54	7.22	6.90	6.97	7.15	6.72	6.88	6.90	6.49
MAX	8.4	7.9	7.0	7.1	7.9	7.3	7.4	7.6	6.9	7.4	7.6	6.9
MIN	7.0	7.1	6.0	6.0	6.8	6.7	6.8	6.6	6.5	6.5	6.5	6.1
AC-FT	47	442	400	402	415	424	415	440	400	423	424	386

CAL YR 1983 TOTAL 2243.0 MEAN 6.15 MAX 8.4 MIN 4.6 AC-FT 4450
WTR YR 1984 TOTAL 2544.4 MEAN 6.95 MAX 8.4 MIN 6.0 AC-FT 5050

06408700 RHOADS FORK NEAR ROCHFORD, SD--Continued

RAINFALL, ACCUMULATED (INCHES), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.20	.00	.00	.00	.00	.00	.05	.00	.10	.16	.00	.00
2	.28	.00	.00	.00	.03	.00	.35	.00	.00	.00	.15	.00
3	.48	.00	.15	.10	.28	.00	.35	.00	.04	.00	.52	.00
4	.00	.00	.15	.00	.00	.00	.00	.00	.14	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.12	.00	.10	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.25	.25	.00	.00	.18	.00	.00	.00	.06	.20	.00	.00
8	.00	.28	.00	.00	.00	.00	.00	.00	.00	.10	.00	.00
9	.00	.00	.00	.90	.00	.00	.00	.00	1.40	.40	.00	.00
10	.40	.00	.10	.30	.00	.00	.00	.00	.18	.00	.00	.00
11	.28	.00	.00	.00	.00	.32	.00	.00	.38	.00	.00	.00
12	.15	.50	.00	.00	.00	.00	.24	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	.28	.00	.00	.00	.00	.08	.00	.00	.30	.10	.00	.00
15	.12	.00	.00	.00	.16	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.30
17	.00	.00	.00	.00	.00	.00	.00	.00	.35	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.34	.00	.00	.00	.00	.00	.00	.00	.00	.00	.55	.00
20	.00	.00	.20	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.20	.00	.00	.00	.15	.00	.30	.00	.00	.00	.00
22	.00	.10	.00	.00	.00	.15	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.10	.00	.16	.00	.00	.00	.20	.00	.10
24	.00	.00	.00	.00	.00	.15	.00	.26	.00	.00	.00	.16
25	.00	.25	.00	.04	.00	.15	.60	.14	.00	.00	.00	.00
26	.00	.35	.00	.02	.00	.10	1.50	.30	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.24	1.20	.20	.00	.00	.00	.00
28	.00	.05	.00	.00	.00	.06	.10	.00	.00	.00	.10	.20
29	.00	.05	.00	.16	.00	.00	.00	.00	.00	1.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.10	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.12	.00	---

06409000 CASTLE CREEK ABOVE DEERFIELD RESERVOIR, NEAR HILL CITY, SD
(Hydrologic benchmark and radiochemical station)

LOCATION.--Lat 44°00'49", long 103°49'48", in SW¼ sec.25, T.1 N., R.2 E., Pennington County, Hydrologic Unit 10120110, on right bank 150 ft upstream from highway culvert, 20 ft downstream from South Fork Castle Creek, 800 ft upstream from high-water line of Deerfield Reservoir, 2.5 mi southwest of Deerfield Dam, and 14 mi northwest of Hill City.

DRAINAGE AREA.--79.2 mi^2 (revised).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1948 to current year. Prior to October 1953, published as "above Deerfield Reservoir, near Deerfield".

REVISED RECORDS.--WSP 1917: 1952(M).

GAGE.--Water-stage recorder. Altitude of gage is 5,910 ft, from reservoir elevation. Prior to Aug. 31, 1948, nonrecording gage at site 50 ft upstream at datum 2.05 ft higher.

REMARKS.--Records good except those for winter period, Nov. 4 to Feb. 24, which are poor.

AVERAGE DISCHARGE.--36 years, 10.6 ft^3/s (7,680 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,120 ft^3/s May 22, 1952 (gage height, 5.81 ft), from rating curve extended above slope-area measurement at gage height, 5.67 ft; minimum, 1.2 ft^3/s Apr. 25, 1969; minimum gage height, 1.35 ft Nov. 12, 1949, Feb. 19, 1954, Mar. 7, 1957, Mar. 29, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 122 ft^3/s at 1445 hours, July 16 (gage height, 6.31 ft); no other peak above base of 100 ft^3/s; minimum daily, 8.0 ft^3/s Dec. 21-24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	13	10	12	10	11	13	19	23	19	33	14
2	14	13	10	12	11	11	13	25	21	18	31	13
3	16	13	11	13	11	11	13	28	21	18	25	13
4	13	13	12	13	11	11	14	25	22	18	18	13
5	13	13	12	14	10	11	16	23	21	18	16	13
6	13	13	11	14	11	11	18	24	21	17	17	13
7	13	13	11	13	11	9.5	21	26	20	17	15	13
8	13	13	11	13	11	10	20	30	19	18	15	13
9	14	13	11	12	11	10	19	36	29	19	14	13
10	14	13	11	12	11	10	21	36	29	19	13	13
11	15	13	12	12	11	10	20	35	30	17	14	13
12	14	13	12	11	11	11	18	35	25	17	14	13
13	14	12	12	11	12	12	17	33	24	16	13	12
14	13	12	11	11	12	15	18	33	24	17	13	14
15	13	12	10	11	12	15	19	34	26	17	13	13
16	14	12	9.5	10	12	13	20	36	23	51	14	13
17	13	12	9.0	10	12	14	21	35	24	95	14	14
18	13	12	8.8	9.7	12	14	21	34	23	90	14	13
19	14	12	8.4	9.5	12	14	20	33	23	89	14	14
20	14	12	8.2	9.2	12	14	19	32	22	66	15	13
21	14	11	8.0	9.0	12	15	18	35	21	43	14	13
22	14	11	8.0	9.2	12	14	18	29	20	40	14	13
23	13	11	8.0	9.4	12	18	18	27	20	39	14	14
24	13	11	8.0	9.4	12	19	17	28	19	38	14	15
25	13	11	8.4	9.6	12	16	14	27	19	37	13	13
26	13	11	9.0	9.6	12	15	8.7	25	19	35	13	14
27	12	11	9.5	9.8	12	14	8.7	29	18	33	14	14
28	13	10	10	9.8	12	14	14	25	18	33	14	14
29	13	10	11	10	12	18	17	24	18	32	14	13
30	13	9.5	11	10	---	15	15	24	18	33	14	13
31	13	---	12	10	---	14	---	23	---	33	14	---
TOTAL	417	358.5	313.8	338.2	334	409.5	509.4	908	660	1052	487	399
MEAN	13.5	11.9	10.1	10.9	11.5	13.2	17.0	29.3	22.0	33.9	15.7	13.3
MAX	16	13	12	14	12	19	21	36	30	95	33	15
MIN	12	9.5	8.0	9.0	10	9.5	8.7	19	18	16	13	12
AC-FT	82	711	622	671	662	812	1010	1800	1310	2090	966	791

CAL YR 1983 TOTAL 5463.3 MEAN 15.0 MAX 29 MIN 8.0 AC-FT 10840
WTR YR 1984 TOTAL 6186.4 MEAN 16.9 MAX 95 MIN 8.0 AC-FT 12270

06409000 CASTLE CREEK ABOVE DEERFIELD RESERVOIR, NEAR HILL CITY, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1964 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES.--May 1964 to current year.

INSTRUMENTATION.--Recorder with thermograph attachment.

REMARKS.--Periodic samples obtained for analysis of suspended-sediment concentration most years. Monthly samples obtained for water-quality analysis.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 22.0°C July 17, 1969; minimum, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT 11...	1430	14	460	8.2	2.5	5.5	2.3	615	10.2	101	K17	56
JAN 09...	1530	12	--	8.6	-1.0	2.0	3.5	620	11.2	100	--	--
APR 09...	1345	18	430	8.5	11.0	5.0	14	607	--	--	K4	K1200
JUL 13...	1400	17	460	8.6	28.0	16.0	11	613	9.2	117	K38	110

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 11...	280	9	58	32	1.8	1	.0	1.4	268	12	1.5	.20
JAN 09...	270	0	57	31	1.6	1	.0	1.0	272	7.5	1.2	.20
APR 09...	240	0	51	28	1.6	1	.0	1.8	256	7.8	1.2	.20
JUL 13...	260	23	51	31	1.7	1	.0	1.4	232	8.7	1.1	.20

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)
OCT 11...	9.4	265	280	.36	10	<.10	.020	.03	1.0	<.010	--
JAN 09...	9.1	268	270	.36	8.7	.14	<.010	--	.30	.060	.18
APR 09...	8.8	248	250	.34	12	.12	.060	.08	.60	.410	1.3
JUL 13...	8.5	233	240	.32	11	<.10	.020	.03	.30	.030	--

< Less than.
K Non-ideal colony count.

BEST COPY AVAILABLE

06409000 CASTLE CREEK ABOVE DEERFIELD RESERVOIR, NEAR HILL CITY, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)
OCT 11...	<.010	<.010	10	1	64	<.5	<1	<1	<3	1	16
JAN 09...	.020	.020	--	--	--	--	--	--	--	--	--
APR 09...	.020	.030	<10	<1	64	<.5	<1	<1	<3	1	14
JUL 13...	<.010	<.010	--	--	--	--	--	--	--	--	--

DATE	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT 11...	3	8	9	<.1	<10	1	<1	<1	78	<6	6
JAN 09...	--	--	--	--	--	--	--	--	--	--	--
APR 09...	2	9	12	<.1	<10	2	<1	<1	66	<6	9
JUL 13...	--	--	--	--	--	--	--	--	--	--	--

DATE	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90)	RADIUM 226, DIS-SOLVED, RADON METHOD (PCI/L)	URANIUM NATURAL DIS-SOLVED (UG/L AS U)
OCT 11...	--	--	--	--	--	--	--	--	--	--	--
JAN 09...	--	--	--	--	--	--	--	--	--	--	--
APR 09...	--	--	--	9.4	1.4	8.2	2.1	7.1	1.8	.11	1.5
JUL 13...	94	4.3	86	--	--	--	--	--	--	--	--

< Less than.

06409000 CASTLE CREEK ABOVE DEERFIELD RESERVOIR, NEAR HILL CITY, SD--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	10.0	6.0	6.0	3.5	.0	.0	---	---	.5	.0	1.5	1.0
2	10.0	6.5	6.0	3.5	.0	.0	---	---	1.0	.5	2.0	1.5
3	8.5	5.0	5.0	3.0	.0	.0	---	---	.5	.0	2.0	2.0
4	8.0	4.0	5.5	2.0	.0	.0	---	---	.5	.0	2.0	1.5
5	6.5	4.5	4.0	2.0	.0	.0	---	---	.0	.0	1.5	1.0
6	9.0	4.0	5.5	3.5	.0	.0	---	---	.0	.0	1.5	1.5
7	7.0	4.5	4.5	3.0	.0	.0	.5	.5	.5	.0	1.5	1.5
8	6.5	1.5	1.5	.5	.0	.0	.5	.5	1.0	.5	1.5	1.5
9	9.5	4.0	.5	.0	.0	.0	.5	.5	1.0	.5	2.0	1.5
10	7.0	6.0	.0	.0	.0	.0	.5	.0	1.0	.5	2.0	1.5
11	7.0	4.5	.0	.0	.0	.0	.5	.5	1.0	1.0	3.0	2.0
12	5.0	4.0	3.0	.5	.0	.0	.5	.0	1.0	.5	3.0	2.0
13	6.0	3.0	.5	.0	.0	.0	.0	.0	1.0	.5	3.0	2.0
14	5.0	4.0	.5	.0	.0	.0	.0	.0	1.5	.5	---	---
15	5.5	4.0	.0	.0	.0	.0	.0	.0	1.5	1.5	---	---
16	6.0	4.5	.5	.0	.0	.0	.0	.0	1.5	.5	---	---
17	5.5	2.0	1.5	.5	---	---	.0	.0	.5	.5	---	---
18	6.0	3.0	2.0	1.5	---	---	.0	.0	.5	.5	---	---
19	6.0	4.0	.5	.0	---	---	.0	.0	.5	.5	---	---
20	5.5	2.0	.0	.0	---	---	.5	.5	.5	.5	---	---
21	5.5	2.0	.0	.0	---	---	.5	.5	1.0	.5	---	---
22	6.0	3.0	.0	.0	---	---	.5	.5	1.5	1.5	---	---
23	7.0	3.5	.0	.0	---	---	.5	.5	1.5	1.0	---	---
24	6.0	3.5	.0	.0	---	---	.5	.5	1.5	1.0	---	---
25	5.5	2.0	.0	.0	---	---	.5	.5	1.0	1.0	---	---
26	7.0	3.0	.0	.0	---	---	.5	.5	1.5	1.0	---	---
27	7.0	4.0	.0	.0	---	---	.5	.5	1.5	1.0	---	---
28	5.0	2.0	.0	.0	---	---	.5	.5	1.0	1.0	---	---
29	6.5	3.5	.0	.0	---	---	.5	.5	1.0	1.0	---	---
30	5.5	2.0	.0	.0	---	---	.5	.5	---	---	---	---
31	6.0	3.0	---	---	---	---	.5	.5	---	---	---	---
MONTH	10.0	1.5	6.0	.0	.0	.0	.5	.0	1.5	.0	3.0	1.0

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	---	---	1.5	1.5	10.0	6.0	---	---	15.5	13.0	15.0	11.5
2	---	---	5.5	1.5	---	---	---	---	18.5	13.0	14.5	8.0
3	---	---	5.0	3.0	---	---	---	---	16.5	13.5	14.0	8.5
4	---	---	7.0	2.0	---	---	---	---	18.5	11.5	14.5	9.0
5	---	---	3.5	3.0	---	---	---	---	19.5	13.0	15.0	10.0
6	---	---	9.0	2.0	---	---	---	---	18.0	14.5	14.5	11.5
7	---	---	8.0	1.5	---	---	---	---	19.0	12.0	13.5	9.5
8	---	---	9.5	2.0	---	---	---	---	19.5	12.0	12.0	7.0
9	5.0	4.0	9.5	4.0	---	---	---	---	19.0	11.0	13.0	8.0
10	6.0	3.0	9.5	4.0	---	---	---	---	19.0	11.5	12.0	9.5
11	5.5	3.0	10.0	4.0	---	---	---	---	19.5	12.0	13.0	10.5
12	5.5	1.0	11.5	4.5	---	---	---	---	18.0	13.0	15.0	10.5
13	4.0	1.0	10.0	5.0	---	---	16.5	14.5	19.5	12.0	13.0	10.5
14	6.5	1.0	11.5	9.5	---	---	18.0	11.0	19.0	13.5	12.0	8.0
15	8.5	1.5	14.0	7.0	---	---	14.5	11.0	19.0	13.0	10.5	7.0
16	9.5	1.5	13.5	7.0	---	---	19.5	11.0	19.5	14.0	14.0	8.0
17	10.5	2.0	12.0	4.5	---	---	18.0	10.0	16.5	14.0	14.5	8.5
18	10.0	3.5	11.5	4.5	---	---	19.0	10.5	18.5	13.0	14.5	8.5
19	10.0	3.5	10.0	4.5	---	---	15.0	11.0	18.0	14.0	13.5	8.5
20	6.0	4.0	13.0	5.0	---	---	17.0	10.5	16.5	13.5	13.5	8.5
21	4.5	3.5	9.5	7.0	---	---	18.0	13.0	15.5	10.5	14.0	10.0
22	10.0	2.0	10.5	4.5	---	---	17.0	13.5	17.0	9.5	10.5	6.5
23	11.5	4.0	13.5	3.5	---	---	15.0	13.0	18.0	12.0	9.0	6.0
24	10.5	4.0	9.5	5.0	---	---	18.0	11.0	17.0	13.5	6.0	4.5
25	6.5	2.0	8.0	3.5	---	---	16.5	11.5	18.0	11.5	6.5	3.0
26	2.0	2.0	8.5	2.0	---	---	17.0	11.0	18.5	12.0	8.5	4.0
27	2.0	2.0	7.0	4.5	---	---	18.5	10.5	18.0	10.5	6.5	4.0
28	2.0	2.0	10.0	1.5	---	---	20.5	13.0	18.0	10.5	6.5	3.5
29	1.5	1.5	13.5	3.5	---	---	20.5	14.5	17.0	10.0	6.5	3.0
30	1.5	1.5	14.5	5.0	---	---	17.0	14.0	16.5	9.5	8.5	3.5
31	---	---	13.0	7.0	---	---	15.5	13.5	17.0	10.0	---	---
MONTH	11.5	1.0	14.5	1.5	10.0	6.0	20.5	10.0	19.5	9.5	15.0	3.0

06409500 DEERFIELD RESERVOIR NEAR HILL CITY, SD

LOCATION.--Lat 44°01'41", long 103°47'09", in NE¼SW¼ sec.20, T.1 N., R.3 E., at dam on Castle Creek, Hydrologic Unit 10120110, 0.4 mi upstream from Dutchman Creek and 12.5 mi northwest of Hill City.

DRAINAGE AREA.--95 mi^2, approximately.

PERIOD OF RECORD.--May 1947 to current year (monthend contents only). Some elevations obtained during period of initial filling, December 1945 to May 1947, are available in Bureau of Reclamation files. Prior to October 1953, published as "near Deerfield."

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation). Prior to July 20, 1964, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by earthfill dam. Storage began Dec. 3, 1945; dam completed in 1947. Usable capacity, 15,153 acre-ft between elevations 5,839 ft (lowest outlet) and 5,908 ft (crest of spillway). Dead storage below elevation 5,839 ft, 565 acre-ft. Figures given herein represent usable contents. Water is used to supplement Rapid City water supply and for irrigation in Rapid Creek basin downstream from Rapid City.

COOPERATION.--Records of elevation and contents furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 15,340 acre-ft May 22, 1952 (elevation, 5,908.50 ft), from capacity table extended above elevation 5,908.00 ft (crest of spillway); minimum observed, 5 acre-ft Oct. 2, 1959 (elevation, 5,839.10 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 13,152 acre-ft Sept. 21-23 (elevation, 5,902.98 ft); minimum, 6,777 acre-ft Oct. 1 (elevation, 5,883.23 ft).

MONTHEND ELEVATION, IN FEET NGVD, AND CONTENTS,
IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

Date	Elevation	Contents	Change in contents
Sept. 30	5883.13	6751	
Oct. 31	5885.40	7363	+612
Nov. 30	5887.54	7968	+605
Dec. 31	5889.50	8547	+579
CAL YR 1983			+6219
Jan. 31	5891.49	9159	+612
Feb. 29	5893.23	9713	+554
Mar. 31	5895.49	10457	+744
Apr. 30	5898.40	11462	+1005
May 31	5901.65	12649	+1187
June 30	5902.65	13026	+377
July 31	5902.94	13137	+111
Aug. 31	5902.77	13072	-65
Sept. 30	5902.87	13110	+38
WTR YR 1984			+6359

06410000 CASTLE CREEK BELOW DEERFIELD DAM, SD

LOCATION.--Lat 44°01'45", long 103°46'53", in NW¼SE¼ sec.20, T.1 N., R.3 E., Pennington County, Hydrologic Unit 10120110, on left bank 200 ft upstream from Dutchman Creek, 1,100 ft downstream from Deerfield Dam, and 12.5 mi northwest of Hill City.

DRAINAGE AREA.--96 mi^2, approximately.

PERIOD OF RECORD.--July 1946 to current year, seasonal records only beginning October 1983.

GAGE.--Water-stage recorder. Datum of gage is 5,784.52 ft National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark). Prior to Oct. 15, 1947, at site 400 ft downstream at datum 0.23 ft higher. Oct. 15, 1947, to Sept. 1, 1948, at site 550 ft downstream at datum 1.77 ft lower, and Sept. 2, 1948, to Nov. 2, 1971, at site 300 ft upstream at datum 4.0 ft higher.

REMARKS.--Records good. Flow completely regulated by Deerfield Reservoir 1,100 ft upstream. (See station 06409500.) Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--37 years (water years 1946 to 1983), 11.1 ft^3/s (8,040 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 200 ft^3/s May 22, 1952; maximum gage height, 4.99 ft Sept. 24, 1982 (backwater from culverts and heavy moss growth); no flow at times in 1948, 1950-60.

EXTREMES FOR CURRENT PERIOD.--Maximum daily discharge, 44 ft^3/s June 16, 17 (gage height, 3.85 ft); minimum daily discharge, 2.1 ft^3/s many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						2.2	2.1	4.6	22	16	17	11
2						2.2	2.1	4.7	18	16	17	11
3						2.2	2.1	8.7	17	16	17	11
4						2.1	5.1	11	18	16	17	11
5						2.1	9.4	11	18	16	17	11
6						2.1	9.2	11	18	16	16	11
7						2.1	9.4	11	17	16	16	11
8						2.1	9.4	11	14	17	16	11
9						2.1	9.2	11	12	17	16	12
10						2.1	9.1	12	13	17	16	12
11						2.1	7.0	12	16	17	16	12
12						2.1	5.3	12	18	17	16	12
13						2.1	5.3	12	17	17	14	12
14						2.2	5.3	12	17	17	10	12
15						2.1	5.3	11	31	17	10	12
16						2.1	5.3	14	44	17	10	13
17						2.1	5.2	16	44	17	11	8.0
18						2.1	5.4	15	31	16	11	4.9
19						2.1	5.2	15	21	16	11	4.9
20						2.1	4.7	15	21	15	11	5.5
21						2.1	4.6	16	20	12	14	9.7
22						2.1	4.6	16	20	13	16	17
23						2.1	4.7	15	20	13	16	17
24						2.1	4.7	18	20	13	15	16
25						2.1	5.1	25	20	15	15	17
26						2.1	5.2	28	20	16	15	16
27						2.1	5.0	28	20	16	15	16
28						2.1	4.6	28	17	16	15	15
29						2.1	4.6	28	15	16	13	15
30						2.1	4.6	28	15	16	11	14
31						2.1	---	28	---	16	11	---
TOTAL						65.5	168.8	488.0	614	491	441	361.0
MEAN						2.11	5.63	15.7	20.5	15.8	14.2	12.0
MAX						2.2	9.4	28	44	17	17	17
MIN						2.1	2.1	4.6	12	12	10	4.9
AC-FT						130	335	968	1220	974	875	716

06410500 RAPID CREEK ABOVE PACTOLA RESERVOIR, AT SILVER CITY, SD

LOCATION.--Lat 44°05'05", long 103°34'48", in SW¼SE¼ sec.36, T.2 N., R.4 E., Pennington County, Hydrologic Unit 10120110, on right bank 0.8 mi west of Silver City and 3.0 mi downstream from Slate Creek.

DRAINAGE AREA.--292 mi².

PERIOD OF RECORD.--October 1953 to current year.

GAGE.--Water-stage recorder. Datum of gage is 4,620.00 ft National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark).

REMARKS.--Records good except those for winter period, Nov. 20 to Feb. 2, which are poor. Flow regulated by Deerfield Reservoir on Castle Creek since December 1945 (see station 06409500). Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--31 years, 41.1 ft³/s (29,780 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,060 ft³/s May 15, 1965 (gage height, 10.44 ft), from rating curve extended above 1,000 ft³/s on basis of slope-area measurement of peak flow; minimum daily, 4.0 ft³/s Jan. 20, 1952.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 198 ft³/s at 1630 hours, Aug. 3 (gage height, 5.69 ft); maximum gage height, 5.79 ft May 11; minimum daily discharge, 5.0 ft³/s Dec. 25.

Rating table (gage height, in feet, and discharge, in cubic feet per second)
(Stage-discharge relation affected by ice or snow Nov. 20 to Feb. 2,
Feb. 7-10, 12, 13, 16-22, Feb. 28 to Mar. 1, Mar. 8-12, Apr. 26-28)

4.2	4.3	4.8	51
4.3	8.9	5.3	122
4.5	22	5.7	196

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	23	18	20	20	23	34	65	112	80	57	34
2	24	22	20	23	21	21	32	69	104	80	66	34
3	25	22	18	25	22	21	35	84	97	82	122	36
4	28	22	17	26	22	20	35	106	96	80	128	37
5	28	22	16	30	21	22	36	124	99	74	88	36
6	28	22	15	28	21	24	46	122	99	69	77	36
7	27	22	14	27	22	23	64	132	95	70	68	36
8	26	22	12	25	22	21	65	133	93	80	62	36
9	26	22	12	23	23	21	67	149	99	82	58	33
10	25	23	16	22	22	20	67	181	151	86	55	31
11	25	23	14	21	22	21	72	186	158	75	53	31
12	25	23	14	21	22	22	62	194	163	70	51	31
13	25	25	16	19	21	23	57	189	156	64	51	32
14	25	25	15	19	20	31	51	187	158	66	42	34
15	25	24	13	19	18	35	50	191	157	69	39	36
16	25	24	11	21	18	35	52	185	167	75	39	36
17	25	25	9.8	19	19	32	59	175	170	64	38	35
18	25	25	8.6	16	21	32	62	158	172	61	38	32
19	25	24	7.4	12	23	31	58	143	145	59	49	28
20	25	23	6.4	11	26	31	57	142	140	59	49	26
21	25	22	6.6	13	28	31	55	141	127	52	49	25
22	25	20	6.4	16	28	31	49	139	119	50	46	27
23	25	19	6.0	21	28	32	48	126	114	49	47	31
24	25	20	5.4	23	27	38	50	123	108	49	43	35
25	25	21	5.0	24	25	40	57	123	102	51	42	36
26	25	19	10	22	22	33	62	129	100	49	41	37
27	24	19	12	21	21	31	72	138	95	49	35	37
28	24	18	13	22	23	29	74	137	93	49	35	37
29	23	18	14	21	25	34	67	126	82	56	35	37
30	23	18	19	21	---	38	66	117	77	61	35	37
31	23	---	20	23	---	35	---	113	---	62	34	---
TOTAL	779	657	390.6	654	653	881	1661	4327	3648	2022	1672	1009
MEAN	25.1	21.9	12.6	21.1	22.5	28.4	55.4	140	122	65.2	53.9	33.6
MAX	28	25	20	30	28	40	74	194	172	86	128	37
MIN	23	18	5.0	11	18	20	32	65	77	49	34	25
AC-FT	155	1300	775	1300	1300	1750	3290	8580	7240	4010	3320	2000

CAL YR 1983	TOTAL	17703.6	MEAN	48.7	MAX	222	MIN	5.0	AC-FT	35290
WTR YR 1984	TOTAL	18353.6	MEAN	50.1	MAX	194	MIN	5.0	AC-FT	36400

06411000 PACTOLA RESERVOIR NEAR SILVER CITY, SD

LOCATION.--Lat 44°04'20", long 103°29'17", in NE¼SW¼ sec.2, T.1 N., R.5 E., Pennington County, Hydrologic Unit 10120110, in outlet works of dam on Rapid Creek, 3.8 mi east of Silver City.

DRAINAGE AREA.--319 mi^2.

PERIOD OF RECORD.--August 1956 to current year (monthend contents only).

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (Bureau of Reclamation datum). Prior to Feb. 18, 1970, nonrecording gage at same site and datum.

REMARKS.--Reservoir formed by an earthfill dam completed August 1956. Storage began August 22, 1956. Conservation capacity, 54,960 acre-ft between elevations 4,456.1 ft and 4,580.2 ft. Combined dead and inactive storage below elevation 4,456.1 ft is 1,003 acre-ft. Flood storage capacity, 43,050 acre-ft between elevations 4,580.2 ft and 4,621.5 ft (crest of spillway). Surcharge capacity, 15,780 acre-ft between elevations 4,621.5 ft and 4,633.7 ft (maximum pool elevation). Figures given herein represent contents above elevation 4,456.1 ft. Reservoir provides flood control and water for municipal and irrigation uses.

COOPERATION.--Records of elevations and contents furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 60,970 acre-ft May 19, 1964 (elevation, 4,585.87 ft); minimum observed since initial filling, 40,566 acre-ft Oct. 2, 1981 (elevation, 4,561.50 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 55,958 acre-ft June 14 (elevation, 4,581.35 ft); minimum, 52,019 acre-ft Oct. 1 (elevation, 4,576.71 ft).

MONTHEND ELEVATION, IN FEET NGVD, AND CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

Date	Elevation	Contents	Change in contents
Sept. 30	4576.68	51995	
Oct. 31	4577.86	52974	+979
Nov. 30	4578.38	53411	+437
Dec. 31	4578.19	53251	-160
CAL YR 1983			-1350
Jan. 31	4578.31	53352	+101
Feb. 29	4578.82	53783	+431
Mar. 31	4579.69	54524	+741
Apr. 30	4579.79	54610	+86
May 31	4580.34	55083	+473
June 30	4581.16	55792	+709
July 31	4580.95	55610	-182
Aug. 31	4579.36	54242	-1368
Sept. 30	4578.71	53690	-552
WTR YR 1984			+1695

06411500 RAPID CREEK BELOW PACTOLA DAM, SD

LOCATION.--Lat 44°04'36", long 103°28'54", in SW¼NE¼ sec.2, T.1 N., R.5 E., Pennington County, Hydrologic Unit 10120110, on right bank 2,000 ft downstream from Pactola Dam, 3.9 mi upstream from Deer Creek and 13 mi west of Rapid City.

DRAINAGE AREA.--320 mi², approximately.

PERIOD OF RECORD.--October 1928 to September 1932 (combined records of Creek and Dakota Power and Light Co. flume), July 1946 to current year. Prior to October 1953, published as "near Pactola." Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1931(M).

GAGE.--Water-stage recorder; concrete control since Oct. 16, 1962. Datum of gage is 4,406.00 ft National Geodetic Vertical Datum of 1929, Bureau of Reclamation bench mark. Apr. 19, 1929, to June 30, 1932, nonrecording gage at site 3,500 ft upstream at different datum. July 24, 1946, to Aug. 24, 1947, nonrecording gage and Aug. 25, 1947, to Nov. 18, 1953, water-stage recorder, at site 2 mi upstream at different datum.

REMARKS.--Records good. Flow regulated by dam on Castle Creek since Dec. 3, 1945 (see station 06409500), and completely regulated by Pactola Reservoir 2,000 ft upstream since Aug. 22, 1956 (see station 06411000).

AVERAGE DISCHARGE.--42 years, 44.4 ft³/s (32,170 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,170 ft³/s May 22, 1952 (gage height, 6.74 ft), site and datum then in use; no flow Oct. 11-17, 1962.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 222 ft³/s May 12, 13 (gage height, 8.28 ft); minimum daily, 13 ft³/s Oct. 2.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

7.1	13	7.8	78
7.2	17	8.1	147
7.4	29	8.4	255
7.6	49		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	15	15	19	22	15	44	79	73	79	103	51
2	13	15	15	19	22	15	44	79	73	73	103	51
3	14	15	15	19	22	15	76	79	73	78	103	51
4	14	15	15	20	22	15	125	95	73	88	103	50
5	14	15	15	21	22	15	136	106	73	93	103	51
6	14	15	15	21	22	15	92	106	73	93	103	51
7	14	15	15	21	22	15	44	128	73	83	103	51
8	14	15	15	21	22	15	44	141	73	93	103	51
9	14	15	15	22	22	15	44	144	73	101	103	51
10	14	15	15	22	22	15	44	156	73	120	103	50
11	14	15	15	22	22	16	44	206	128	85	103	51
12	14	15	19	22	22	16	44	222	159	85	103	51
13	14	15	21	22	18	16	44	222	156	85	103	51
14	14	15	21	22	15	16	44	218	156	71	106	51
15	14	15	21	21	15	16	46	218	188	65	85	51
16	14	15	21	22	15	16	35	218	199	81	85	43
17	14	15	21	22	15	16	29	218	199	88	91	37
18	14	15	21	22	15	16	30	218	182	88	91	36
19	14	15	21	22	15	20	30	218	159	88	91	36
20	14	15	21	21	15	21	30	214	144	67	83	36
21	14	15	21	21	15	21	30	140	144	64	61	36
22	14	15	21	21	14	21	30	103	120	68	59	36
23	14	15	21	21	15	21	30	103	108	61	58	36
24	14	15	20	20	15	21	30	103	103	57	58	36
25	14	15	20	21	15	21	57	103	103	57	58	36
26	15	15	20	22	15	21	78	101	103	57	58	35
27	15	15	20	22	15	21	79	101	88	67	58	35
28	15	15	20	22	15	21	79	101	87	71	58	35
29	15	15	19	22	15	41	79	101	88	71	57	35
30	15	15	19	22	---	44	79	83	88	78	57	35
31	15	---	19	22	---	44	---	74	---	103	53	---
TOTAL	440	450	572	659	521	616	1640	4398	3432	2458	2606	1306
MEAN	14.2	15.0	18.5	21.3	18.0	19.9	54.7	142	114	79.3	84.1	43.5
MAX	15	15	21	22	22	44	136	222	199	120	106	51
MIN	13	15	15	19	14	15	29	74	73	57	53	35
AC-FT	87	893	1130	1310	1030	1220	3250	8720	6810	4880	5170	2590

CAL YR 1983	TOTAL	19146	MEAN	52.5	MAX	268	MIN	13	AC-FT	37980
WTR YR 1984	TOTAL	19098	MEAN	52.2	MAX	222	MIN	13	AC-FT	37880

06412500 RAPID CREEK ABOVE CANYON LAKE, NEAR RAPID CITY, SD

LOCATION.--Lat 44°03'04", long 103°18'47", in NE¼NE¼ sec.18, T.1 N., R.7 E., Pennington County, Hydrologic Unit 10120110, on right bank at bridge on State Highway 44, 1.0 mi southwest of city limits of Rapid City and 2.8 mi downstream from Victoria Creek.

DRAINAGE AREA.--371 mi².

PERIOD OF RECORD.--July 1946 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,405.39 ft National Geodetic Vertical Datum of 1929, levels by Corps of Engineers. Prior to Oct. 6, 1947, nonrecording gage, Oct. 6, 1947, to Nov. 2, 1967, and Oct. 1, 1968, to Sept. 30, 1976, water-stage recorder all at datum 2.0 ft higher. Nov. 3, 1967, to Sept. 30, 1968, nonrecording gage at site 0.2 mi downstream at datum 1.12 ft lower.

REMARKS.--Records good except those for period of no gage-height record, July 11 to Aug. 22, which are poor. Flow regulated by dam on Castle Creek since December 1945 (see station 06409500) and by Pactola Reservoir 21 mi upstream since August 1956 (see station 06411000). Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--38 years, 39.7 ft³/s (28,760 acre-ft/yr); median of yearly mean discharges, 36 ft³/s (26,100 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,200 ft³/s June 9, 1972 (gage height, 17.77 ft), present datum, from floodmarks, from rating curve extended above 1,300 ft³/s on basis of slope-area measurement of peak flow; no flow at times in 1950-51, 1957-60, 1962-63, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 249 ft³/s at 1730 hours, June 15 (gage height, 4.44 ft); minimum daily, 7.6 ft³/s Mar. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	11	9.2	17	20	16	42	89	87	90	70	42
2	14	11	9.3	18	19	11	44	91	83	80	85	42
3	12	11	10	19	19	9.6	62	93	82	88	90	40
4	9.7	11	13	20	20	9.2	169	99	85	96	90	40
5	9.2	11	13	21	20	11	138	119	82	100	85	40
6	8.9	11	12	22	19	9.8	119	123	83	100	80	39
7	8.9	11	11	22	20	8.1	49	130	79	110	75	39
8	9.2	11	9.9	21	21	10	44	152	81	110	70	39
9	9.2	11	8.9	21	21	10	43	155	89	140	70	40
10	9.2	11	7.8	21	23	10	43	160	102	160	70	40
11	9.2	11	10	21	18	10	42	199	137	100	70	41
12	9.2	11	10	20	20	10	41	224	188	90	70	41
13	8.4	10	11	17	23	9.8	42	221	182	85	70	41
14	8.9	10	12	17	15	10	42	223	179	80	70	44
15	13	10	11	16	11	10	42	228	210	75	80	41
16	13	10	11	15	13	8.8	43	233	237	80	70	41
17	12	10	10	15	11	8.7	32	230	240	80	66	34
18	11	10	10	15	8.8	8.5	30	231	233	75	66	28
19	10	11	9.5	15	11	7.6	30	227	196	75	62	28
20	10	11	9.5	15	18	10	29	226	178	70	68	27
21	10	11	9.0	16	11	10	29	191	173	60	64	27
22	10	9.4	9.0	17	8.8	11	29	119	158	60	58	28
23	11	9.4	8.5	17	9.6	11	29	116	138	62	55	28
24	11	9.4	8.5	19	9.7	12	31	115	127	55	50	25
25	11	9.5	8.5	20	10	13	41	116	129	50	48	20
26	10	10	9.0	20	8.3	13	81	114	115	47	47	28
27	11	10	10	20	11	14	82	113	100	50	46	28
28	11	10	11	21	10	15	82	109	94	52	45	28
29	11	10	13	21	11	36	82	108	94	60	40	23
30	11	9.4	15	22	---	41	84	102	100	55	42	28
31	12	---	16	21	---	41	---	91	---	60	44	---
TOTAL	331.0	312.1	325.6	582	440.2	415.1	1696	4747	4061	2495	2016	1030
MEAN	10.7	10.4	10.5	18.8	15.2	13.4	56.5	153	135	80.5	65.0	34.3
MAX	17	11	16	22	23	41	169	233	240	160	90	44
MIN	8.4	9.4	7.8	15	8.3	7.6	29	89	79	47	40	20
AC-FT	65	619	646	1150	873	823	3360	9420	8050	4950	4000	2040

CAL YR 1983 TOTAL 18745.7 MEAN 51.4 MAX 276 MIN 7.8 AC-FT 37180
WTR YR 1984 TOTAL 18451.0 MEAN 50.4 MAX 240 MIN 7.6 AC-FT 36600

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06414000 RAPID CREEK AT RAPID CITY, SD

LOCATION.--Lat 44°05'09", long 103°14'31", in NE¼SE¼SW¼ sec.35, T.2 N., R.7 E., Pennington County, Hydrologic Unit 10120110, on left bank 3,000 ft upstream from 12th Street in Rapid City and 3.6 mi downstream from Canyon Lake Dam.

DRAINAGE AREA.--410 mi², approximately.

PERIOD OF RECORD.--June 1903 to November 1906, July 1942 to current year. Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 3,230.00 ft National Geodetic Vertical Datum of 1929. Prior to Nov. 30, 1906, nonrecording gage at site 1 mi downstream at different datum, and June 10, 1972, to Nov. 1, 1972, nonrecording gage at site 800 ft downstream at datum 0.80 ft higher. July 1942 to June 9, 1972, water-stage recorder at site 300 ft downstream at datum 0.80 ft higher (destroyed by flood).

REMARKS.--Records good. Several small diversions above station to municipal park pools and for irrigation of about 320 acres. Flow regulated by Pactola Reservoir 25.4 mi upstream since Aug. 22, 1956 (see station 06411000). Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--45 years, 61.4 ft³/s (44,480 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,000 ft³/s June 9. 1972 (gage height, 19.66 ft), from floodmarks, on basis of slope-area measurement of peak flow; minimum, 1.6 ft³/s Apr. 20, 1962.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 12, 13, 1920, reached a stage of 14.4 ft present datum, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 414 ft³/s at 1715 hours, June 15 (gage height, 5.48 ft); minimum daily discharge, 25 ft³/s Feb. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	38	38	38	39	31	53	106	90	107	103	60
2	32	36	31	38	38	31	58	102	90	85	100	59
3	32	35	33	40	38	31	72	103	88	102	118	57
4	31	35	36	42	38	30	213	109	94	116	123	55
5	28	36	36	50	39	30	177	140	91	117	107	58
6	27	36	34	46	37	31	163	149	96	106	105	59
7	27	35	31	46	36	30	70	152	91	125	103	59
8	27	37	33	46	37	27	62	179	88	125	97	57
9	28	35	33	44	37	31	59	181	120	126	98	54
10	29	36	33	43	37	31	57	181	124	161	94	59
11	29	35	33	43	37	32	57	216	173	119	99	65
12	27	36	34	43	37	29	56	242	214	113	98	73
13	29	37	35	41	36	29	56	243	215	103	94	63
14	32	34	38	41	34	28	56	243	216	103	97	73
15	32	33	38	38	32	30	55	241	265	91	95	69
16	28	34	36	37	30	29	55	234	273	88	85	66
17	28	35	32	36	29	29	48	231	270	99	125	55
18	29	34	32	37	30	31	44	229	260	90	116	49
19	32	33	33	36	29	30	44	227	222	91	112	55
20	30	34	33	35	28	32	44	229	199	91	111	60
21	28	36	34	35	30	33	44	213	193	65	93	55
22	28	35	35	37	29	33	44	125	176	66	75	58
23	27	34	35	37	29	33	43	115	155	77	74	55
24	26	32	34	38	29	34	42	121	133	69	69	63
25	28	35	33	40	29	33	65	121	127	59	66	66
26	28	36	36	41	28	33	95	122	123	55	63	64
27	27	34	37	40	28	34	93	136	116	55	61	65
28	29	37	39	40	25	35	104	122	99	71	56	56
29	37	34	38	40	29	47	103	118	101	70	53	65
30	41	36	38	38	---	51	102	113	102	64	56	57
31	39	---	40	39	---	48	---	90	---	86	64	---
TOTAL	932	1053	1081	1245	954	1016	2234	5133	4604	2895	2810	1809
MEAN	30.1	35.1	34.9	40.2	32.9	32.8	74.5	166	153	93.4	90.6	60.3
MAX	41	38	40	50	39	51	213	243	273	161	125	73
MIN	26	32	31	35	25	27	42	90	88	55	53	49
AC-FT	185	2090	2140	2470	1890	2020	4430	10180	9130	5740	5570	3590

CAL YR 1983 TOTAL 24460 MEAN 67.0 MAX 261 MIN 26 AC-FT 48520
WTR YR 1984 TOTAL 25766 MEAN 70.4 MAX 273 MIN 25 AC-FT 51110

06418900 RAPID CREEK BELOW SEWAGE PLANT, NEAR RAPID CITY, SD

LOCATION.--Lat 44°01'24", long 103°05'43", in NW¼NE¼NE¼ sec.25, T.1 N., R.8 E., Pennington County, Hydrologic Unit 10120110, on right bank 80 ft downstream from sewage treatment plant effluent and 6.7 mi southeast of Rapid City.

DRAINAGE AREA.--452 mi^2, approximately.

PERIOD OF RECORD.--October 1981 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,000 ft, from topographic map.

REMARKS.--Records good. Flow regulated by Pactola Reservoir 40.9 mi upstream since Aug. 22, 1956 (see station 06411000). Diversions for irrigation of about 7,000 acres above station. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,680 ft^3/s July 25, 1982 (gage height, 9.12 ft); minimum daily, 13 ft^3/s Oct. 4, 7-9, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 788 ft^3/s at 0615 hours, June 15 (gage height, 6.18 ft); minimum daily, 20 ft^3/s Sept. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	35	36	51	56	48	72	156	81	121	56	37
2	29	34	37	54	55	46	96	145	79	106	61	32
3	40	36	41	55	54	46	106	141	76	105	74	25
4	43	35	42	58	53	45	205	152	97	125	94	25
5	27	35	43	67	52	46	193	167	83	127	74	28
6	28	36	39	81	53	46	192	174	94	117	68	28
7	26	38	39	67	52	45	113	181	80	125	65	23
8	24	48	39	66	52	42	86	196	83	158	61	25
9	24	45	38	59	53	44	82	200	151	141	62	25
10	25	45	40	57	53	45	80	199	185	166	56	26
11	27	44	42	58	54	46	80	219	219	144	57	28
12	26	45	44	56	52	44	78	254	218	119	57	30
13	25	48	43	52	52	47	78	253	208	107	58	28
14	26	48	44	52	52	47	77	255	216	104	51	51
15	44	44	45	45	48	47	76	254	462	94	51	36
16	29	45	40	50	46	44	77	251	416	91	40	36
17	29	46	37	46	45	46	71	243	326	93	80	34
18	36	45	36	43	46	47	64	238	308	89	162	25
19	44	45	37	44	44	49	63	230	256	86	88	22
20	39	44	40	43	45	48	62	229	230	73	95	21
21	38	43	39	47	46	51	64	223	216	54	80	21
22	37	44	40	51	46	51	62	126	207	46	58	21
23	39	45	42	53	44	51	62	106	178	56	55	20
24	38	40	41	55	45	51	60	113	161	50	52	27
25	38	45	40	55	45	52	121	111	155	38	46	26
26	39	45	41	59	45	51	143	111	144	31	43	27
27	41	40	45	58	45	52	132	140	137	30	43	32
28	38	40	47	67	43	53	165	116	118	30	38	33
29	36	42	46	61	42	58	164	108	116	35	34	32
30	36	39	46	55	---	71	154	105	114	33	35	39
31	37	---	48	55	---	72	---	86	---	32	36	---
TOTAL	1039	1264	1277	1720	1418	1531	3078	5482	5414	2726	1930	863
MEAN	33.5	42.1	41.2	55.5	48.9	49.4	103	177	180	87.9	62.3	28.8
MAX	44	48	48	81	56	72	205	255	462	166	162	51
MIN	24	34	36	43	42	42	60	86	76	30	34	20
AC-FT	206	2510	2530	3410	2810	3040	6110	10870	10740	5410	3830	1710

CAL YR 1983 TOTAL 26426 MEAN 72.4 MAX 386 MIN 17 AC-FT 52420
WTR YR 1984 TOTAL 27742 MEAN 75.8 MAX 462 MIN 20 AC-FT 55030

06421500 RAPID CREEK NEAR FARMINGDALE, SD

LOCATION.--Lat 43°56'31", long 102°51'12", in SW¼SW¼SW¼ sec.19, T.1 S., R.11 E., Pennington County, Hydrologic Unit 10120110, on right bank at downstream side of bridge, 2 mi southeast of Farmingdale and 4.8 mi downstream from Antelope Creek.

DRAINAGE AREA.--602 mi^2.

PERIOD OF RECORD.--July 1946 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,700 ft, from topographic map. Prior to Sept. 19, 1947, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, Nov. 28 to Feb. 5, which are poor. Flow regulated by Pactola Reservoir 67 mi upstream since August 22, 1956 (see station 06411000). Diversions for irrigation of about 10,000 acres above station.

AVERAGE DISCHARGE.--38 years, 55.2 ft^3/s (40,720 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,320 ft^3/s June 10, 1972 (gage height, 11.85 ft), from floodmarks, from rating curve extended above 400 ft^3/s on basis of contracted-opening and flow-over-road measurement of peak flow; no flow at times in 1949, 1952-56, 1958-63, 1969-71.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 620 ft^3/s at 1330 hours, June 16 (gage height, 8.07 ft); maximum gage height, 8.50 ft June 16 (backwater from debris); minimum daily discharge, 4.4 ft^3/s July 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	44	43	58	100	35	76	209	71	112	8.5	28
2	40	41	43	62	95	53	83	206	69	115	21	32
3	43	41	45	64	92	58	113	177	68	90	35	29
4	60	42	46	64	88	57	139	197	61	104	48	23
5	47	40	47	75	96	58	234	189	82	107	48	16
6	38	40	43	88	124	58	205	208	73	96	30	13
7	37	41	43	92	148	56	184	204	79	83	22	11
8	37	48	43	78	140	49	109	198	82	131	9.4	17
9	34	58	43	74	122	57	95	210	102	118	5.2	11
10	32	52	44	70	115	56	91	206	242	128	11	15
11	34	51	46	66	109	55	88	204	259	141	13	15
12	36	51	48	64	108	58	82	232	268	111	15	21
13	35	51	50	62	96	54	80	253	235	101	14	25
14	35	57	48	60	97	57	80	248	233	89	20	28
15	45	55	52	58	94	55	79	251	326	85	15	51
16	53	50	43	66	79	53	78	248	503	71	9.6	47
17	40	51	39	62	63	51	75	244	342	52	17	47
18	40	54	37	58	70	54	65	238	317	45	81	44
19	44	52	38	56	64	54	52	233	267	38	85	32
20	52	53	41	56	55	55	51	224	238	35	91	32
21	46	52	37	58	49	54	51	213	217	31	89	29
22	43	54	34	60	50	56	50	204	206	21	60	28
23	44	52	29	66	46	56	52	126	188	16	46	32
24	45	57	24	68	43	55	54	112	168	22	50	34
25	43	60	29	72	42	56	63	118	153	22	42	50
26	43	50	34	82	37	55	204	116	146	16	38	50
27	44	48	40	100	37	58	140	133	136	15	37	50
28	45	47	44	110	46	57	184	146	129	14	31	56
29	43	45	48	94	39	57	273	124	114	10	24	56
30	41	43	50	95	---	64	235	116	112	12	19	54
31	44	---	54	110	---	75	---	96	---	4.4	21	---
TOTAL	1309	1480	1305	2248	2344	1726	3365	5883	5486	2035.4	1055.7	976
MEAN	42.2	49.3	42.1	72.5	80.8	55.7	112	190	183	65.7	34.1	32.5
MAX	60	60	54	110	148	75	273	253	503	141	91	56
MIN	32	40	24	56	37	35	50	96	61	4.4	5.2	11
AC-FT	260	2940	2590	4460	4650	3420	6670	11670	10880	4040	2090	1940

CAL YR 1983 TOTAL 27081.6 MEAN 74.2 MAX 400 MIN 1.4 AC-FT 53720
WTR YR 1984 TOTAL 29213.1 MEAN 79.8 MAX 503 MIN 4.4 AC-FT 57940

06422500 BOXELDER CREEK NEAR NEMO, SD

LOCATION.--Lat 44°08'38", long 103°27'16", in SE¼SE¼ sec.12, T.2 N., R.5 E., Lawrence County, Hydrologic Unit 10120111, on right bank at ranch 0.2 mi upstream from county line, 0.9 mi downstream from Jim Creek and 4.5 mi southeast of Nemo.

DRAINAGE AREA.--96 mi^2, approximately.

PERIOD OF RECORD.--July 1945 to July 1947, May 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 4,320.27 ft National Geodetic Vertical Datum of 1929. July 1945 to July 1947 nonrecording gage at site 100 ft upstream at different datum. May 17, 1966, to June 9, 1972, water-stage recorder (destroyed by flood) and June 10, 1972, to Aug. 8, 1972, nonrecording gage, both at site 100 ft upstream at datum 2.00 ft higher.

REMARKS.--Records good except those for winter period, Nov. 24 to Feb. 10, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--19 years (water years 1946, 1967-84), 19.0 ft^3/s (13,770 acre-ft/yr); median of yearly mean discharges, 19 ft^3/s (13,800 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,100 ft^3/s June 9, 1972 (gage height, 20.4 ft, site and datum then in use, 22.0 ft, present site and datum), from floodmarks, from rating curve extended above 600 ft^3/s on basis of slope-area measurement of peak flow; minimum daily, 0.70 ft^3/s Dec. 30, 1968.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1911 reached a stage of about 16 ft, present datum.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 10	0300	131	2.96	June 15	0530	*215	*3.44
June 10	0600	151	3.09				

Minimum daily discharge, 3.5 ft^3/s Dec. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.8	7.5	5.2	6.0	7.2	6.6	9.6	30	44	46	29	14
2	7.0	7.6	5.4	6.5	7.4	6.8	9.3	31	44	45	35	14
3	8.8	7.5	5.8	7.0	7.6	6.8	8.9	51	42	48	43	14
4	10	7.4	6.0	7.5	8.0	6.6	14	70	48	44	33	14
5	8.7	7.4	6.0	8.0	8.2	6.2	11	70	46	40	28	13
6	7.6	7.4	5.6	8.0	8.4	6.0	14	61	47	36	29	13
7	7.1	7.2	5.6	7.5	8.6	6.0	21	73	42	36	26	12
8	7.0	7.7	5.4	7.2	8.6	7.6	30	80	40	64	24	11
9	7.1	7.5	5.2	7.0	8.6	9.3	35	98	56	57	22	11
10	6.8	7.1	5.2	6.8	8.6	9.0	32	118	113	44	21	12
11	7.4	7.0	5.4	6.6	8.5	8.5	34	111	108	37	21	12
12	8.3	7.2	6.0	6.4	8.2	7.4	27	107	93	35	20	12
13	8.8	7.2	6.5	6.0	8.0	7.2	28	104	88	32	20	12
14	8.2	7.2	6.5	5.8	7.6	9.7	23	100	95	32	20	14
15	8.9	7.4	6.5	5.6	7.2	15	25	95	138	36	19	14
16	9.0	7.6	6.2	5.6	7.4	17	26	87	113	51	22	12
17	9.1	8.1	6.0	5.4	7.4	15	27	78	109	34	24	12
18	8.0	7.7	5.8	5.1	7.6	13	27	73	106	31	23	11
19	7.9	7.5	5.4	5.6	7.6	11	25	68	94	31	30	9.9
20	8.0	7.5	4.8	5.8	7.6	12	24	66	88	31	29	9.2
21	8.2	8.2	4.5	6.0	7.6	9.8	23	68	81	30	26	9.2
22	8.2	7.7	4.2	6.2	7.5	10	22	66	75	28	25	8.6
23	7.9	7.4	4.0	6.2	7.4	9.3	21	55	69	28	21	9.1
24	7.8	7.0	3.5	6.4	7.2	14	21	50	65	28	20	11
25	7.6	6.5	3.8	6.4	7.2	17	19	57	62	27	18	11
26	7.6	6.0	4.0	6.6	7.0	12	12	59	58	26	18	11
27	7.4	6.0	4.5	6.8	6.8	11	9.9	67	54	25	16	11
28	7.4	5.5	5.0	7.0	6.6	8.0	8.7	64	52	24	16	11
29	7.4	5.2	5.0	7.0	6.6	8.8	9.2	52	48	24	15	11
30	7.4	4.8	5.0	7.0	---	10	19	47	45	25	14	11
31	7.4	---	5.5	7.0	---	9.2	---	44	---	26	14	---
TOTAL	244.8	213.0	163.5	202.0	222.2	305.8	615.6	2200	2163	1101	719	350.0
MEAN	7.90	7.10	5.27	6.52	7.66	9.86	20.5	71.0	72.1	35.5	23.2	11.7
MAX	10	8.2	6.5	8.0	8.6	17	35	118	138	64	43	14
MIN	6.8	4.8	3.5	5.1	6.6	6.0	8.7	30	40	24	14	8.6
AC-FT	48	422	324	401	441	607	1220	4360	4290	2180	1430	694

CAL YR 1983 TOTAL 7754.2 MEAN 21.2 MAX 134 MIN 3.5 AC-FT 15380
WTR YR 1984 TOTAL 8499.9 MEAN 23.2 MAX 138 MIN 3.5 AC-FT 16860

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06423010 BOXELDER CREEK NEAR RAPID CITY, SD

LOCATION.--Lat 44°07'54", long 103"17'54", in NW¼SE¼ sec.17, T.2 N., R.7 E., Pennington County, Hydrologic Unit 10120111, near center span on downstream side of bridge on State Highway 79, and 4.0 mi northwest of Rapid City.

DRAINAGE AREA.--128 mi^2.

PERIOD OF RECORD.--May 1978 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,450 ft, from topographic map.

REMARKS.--Records good. Considerable loss in sinkholes in reach above gage.

AVERAGE DISCHARGE.--6 years, 1.32 ft^3/s (956 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 253 ft^3/s May 18, 1978 (gage height, 31.14 ft), from floodmark; maximum gage height, 31.51 ft May 7, 1983 (backwater from small dam); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 76 ft^3/s June 11 (gage height, 31.29 ft); no flow for many days.

CORRECTION.--The maximum gage height for water year 1983 is 31.51 ft; the previously published figure was in error.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	1.7	6.9	9.0	1.2
2	.00	.00	.00	.00	.00	.00	.00	.00	1.8	6.7	7.8	1.1
3	.00	.00	.00	.00	.00	.00	.00	.00	2.1	6.7	8.0	.92
4	.00	.00	.00	.00	.00	.00	.00	.00	2.3	6.5	9.2	.80
5	.00	.00	.00	.00	.00	.00	.00	.00	2.3	6.6	9.1	.72
6	.00	.00	.00	.00	.00	.00	.00	.00	2.3	6.3	10	.73
7	.00	.00	.00	.00	.00	.00	.00	.00	2.3	6.2	6.1	.67
8	.00	.00	.00	.00	.00	.00	.00	.00	2.0	6.1	3.2	.57
9	.00	.00	.00	.00	.00	.00	.00	10	2.8	6.0	3.0	.52
10	.00	.00	.00	.00	.00	.00	.00	35	37	6.0	3.1	.49
11	.00	.00	.00	.00	.00	.00	.00	49	59	5.8	3.4	.41
12	.00	.00	.00	.00	.00	.00	.00	49	60	5.8	3.0	.36
13	.00	.00	.00	.00	.00	.00	.00	49	52	5.7	3.0	.29
14	.00	.00	.00	.00	.00	.00	.00	47	51	5.6	2.6	.27
15	.00	.00	.00	.00	.00	.00	.00	41	51	5.5	2.4	.22
16	.00	.00	.00	.00	.00	.00	.00	35	47	5.3	2.6	.18
17	.00	.00	.00	.00	.00	.00	.00	27	38	5.4	3.5	.15
18	.00	.00	.00	.00	.00	.00	.00	22	35	5.2	3.3	.11
19	.00	.00	.00	.00	.00	.00	.00	17	32	5.2	2.7	.06
20	.00	.00	.00	.00	.00	.00	.00	14	27	5.0	2.5	.02
21	.00	.00	.00	.00	.00	.00	.00	11	25	5.4	2.3	.02
22	.00	.00	.00	.00	.00	.00	.00	17	22	5.3	1.9	.00
23	.00	.00	.00	.00	.00	.00	.00	8.8	22	6.7	1.9	.00
24	.00	.00	.00	.00	.00	.00	.00	4.8	20	11	1.9	.00
25	.00	.00	.00	.00	.00	.00	.00	4.6	12	9.7	2.2	.00
26	.00	.00	.00	.00	.00	.00	.00	7.2	11	9.4	2.5	.00
27	.00	.00	.00	.00	.00	.00	.00	10	8.1	10	2.1	.00
28	.00	.00	.00	.00	.00	.00	.00	16	8.1	11	1.9	.00
29	.00	.00	.00	.00	.00	.00	.00	8.6	7.1	11	1.6	.00
30	.00	.00	.00	.00	---	.00	.00	3.7	7.1	11	1.4	.00
31	.00	---	.00	.00	---	.00	---	2.2	---	9.8	1.3	---
TOTAL	.00	.00	.00	.00	.00	.00	.00	488.90	651.0	218.8	118.5	9.81
MEAN	.00	.00	.00	.00	.00	.00	.00	15.8	21.7	7.06	3.82	.33
MAX	.00	.00	.00	.00	.00	.00	.00	49	60	11	10	1.2
MIN	.00	.00	.00	.00	.00	.00	.00	.00	1.7	5.0	1.3	.00
AC-FT	.0	.00	.00	.00	.00	.00	.00	970	1290	434	235	19

CAL YR 1983 TOTAL 1372.81 MEAN 3.76 MAX 87 MIN .00 AC-FT 2720
WTR YR 1984 TOTAL 1487.01 MEAN 4.06 MAX 60 MIN .00 AC-FT 2950

06423500 CHEYENNE RIVER NEAR WASTA, SD

LOCATION.--Lat 44°04'52", long 102°24'03", in NE¼NE¼NW¼ sec.2, T.1 N., R.14 E., Pennington County, Hydrologic Unit 10120111, on left bank at downstream side of highway bridge, 200 ft downstream from Chicago and North Western Transportation Co. bridge, 3.0 mi east of Wasta, and 8.6 mi downstream from Boxelder Creek.

DRAINAGE AREA.--12,800 mi², approximately.

PERIOD OF RECORD.--July 1914 to June 1915, August 1928 to June 1932, March 1934 to current year. Monthly discharge only for some periods, published in WSP 1309. Records for Feb. 19-28, 1930, published in WSP 701, have been found to be unreliable and should not be used.

REVISED RECORDS.--WSP 786: Drainage area. WSP 1279: 1930(M), 1931, 1937. See also Period of Record.

GAGE.--Water-stage recorder. Datum of gage is 2,260.78 ft National Geodetic Vertical Datum of 1929. Prior to Aug. 1, 1940, nonrecording gage at site 50 ft upstream; Aug. 1, 1940, to Dec. 3, 1940, nonrecording gage and Dec. 4, 1940, to Sept. 30, 1968, water-stage recorder at present site all at datum 2.00 ft higher. Oct. 1, 1968, to Sept. 30, 1972, at datum 1.00 ft higher.

REMARKS.--Records good except those for winter period, Nov. 26 to Mar. 13, which are poor. Flow regulated by Angostura Reservoir 108 mi upstream (see station 06401000) since October 1949 and by upstream reservoirs on Rapid Creek since August 1956. Several observations of water quality were made during the year. National Weather Service telemeter and Corps of Engineers satellite data-collection platform at station.

AVERAGE DISCHARGE.--53 years (water years 1929-31, 1935-84), 347 ft³/s (251,400 acre-ft/yr); median of yearly mean discharges, 300 ft³/s (217,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 46,300 ft³/s May 6, 1932 (gage height, 13.28 ft), present datum, from rating curve extended above 11,000 ft³/s on basis of an incomplete discharge measurement at gage height 10.65 ft, present datum; maximum gage height observed, 14.5 ft, present datum, June 13, 1915; minimum discharge, 0.6 ft³/s July 27, 1961.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 1920 reached a stage of 18 ft, present datum, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,370 ft³/s at 0215 hours, Apr. 27 (gage height, 6.25 ft); maximum gage height, 6.40 ft, date unknown (backwater from ice); minimum daily discharge, 32 ft³/s Dec. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	104	117	88	64	270	180	352	2380	409	332	64	77
2	118	121	96	68	260	200	302	2420	413	312	62	84
3	118	117	100	66	260	190	371	2690	432	440	67	107
4	125	119	110	64	250	180	921	3350	777	316	119	109
5	135	121	106	66	220	170	660	3680	606	303	111	98
6	126	119	102	68	230	160	527	3630	613	287	116	94
7	110	118	100	70	240	150	454	2750	607	258	110	85
8	107	129	100	71	240	140	393	2770	423	637	98	84
9	106	258	96	72	230	120	326	2430	457	421	84	92
10	107	250	90	72	230	130	304	1770	1470	361	72	94
11	110	183	98	72	220	130	321	1550	1290	395	72	88
12	109	157	96	70	220	140	356	1330	1550	326	76	90
13	112	175	94	69	220	140	346	1250	824	275	72	90
14	112	175	90	66	220	145	344	1100	754	245	65	98
15	115	150	80	58	220	138	307	1010	986	351	56	105
16	121	145	70	50	220	136	271	947	1230	729	57	123
17	135	137	60	48	210	146	265	934	1520	258	61	123
18	123	137	50	46	210	149	264	883	2080	209	107	126
19	127	137	45	50	210	151	255	833	1750	207	129	116
20	124	135	40	48	210	168	246	746	1230	181	955	100
21	131	132	42	45	230	160	268	728	948	160	360	98
22	126	129	40	52	220	168	300	712	921	143	216	100
23	124	147	35	60	210	201	279	694	760	123	169	98
24	123	114	32	70	200	214	275	648	685	110	138	109
25	120	102	34	80	200	259	324	581	566	106	129	116
26	117	100	39	90	190	501	2790	569	527	117	115	131
27	118	90	45	110	180	543	3430	711	469	107	109	138
28	119	92	47	150	170	400	1340	784	445	98	104	143
29	120	86	47	180	160	373	3170	575	409	87	96	151
30	117	82	45	220	---	377	2390	502	362	78	86	154
31	117	---	54	280	---	445	---	447	---	67	76	---
TOTAL	3676	4074	2171	2595	6350	6704	22151	45404	25513	8039	4151	3221
MEAN	119	136	70.0	83.7	219	216	738	1465	850	259	134	107
MAX	135	258	110	280	270	543	3430	3680	2080	729	955	154
MIN	104	82	32	45	160	120	246	447	362	67	56	77
AC-FT	729	8080	4310	5150	12600	13300	43940	90060	50610	15950	8230	6390

CAL YR 1983 TOTAL 91340 MEAN 250 MAX 4350 MIN 32 AC-FT 181200
WTR YR 1984 TOTAL 134049 MEAN 366 MAX 3680 MIN 32 AC-FT 265900

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06425100 ELK CREEK NEAR RAPID CITY, SD

LOCATION.--Lat 44°14'25", long 103°09'03", in NE¼NE¼ sec.9, T.3 N., R.8 E., Meade County, Hydrologic Unit 10120110, on section line near right upstream corner of county road bridge, 1.7 mi downstream from Morris Creek tributary and 10 mi north of Exit 61 and I-90 northeast of Rapid City.

DRAINAGE AREA.--190 mi^2.

PERIOD OF RECORD.--November 1978 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,950 ft, from topographic map.

REMARKS.--Records good except those for winter period, Nov. 8 to Jan. 3, which are poor. Some flow is pumped from stream for irrigation. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--5 years, 7.19 ft^3/s (5,210 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,560 ft^3/s May 20, 1982 (gage height, 10.79 ft); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 4	1130	570	9.52	June 15	1730	271	8.40
June 10	1400	*905	*10.31	June 17	1000	261	8.34

Minimum daily discharge, 0.26 ft^3/s Dec. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	3.5	2.7	1.8	6.9	3.6	3.9	1.9	7.6	27	9.5	5.0
2	2.0	3.5	2.8	2.1	6.7	3.9	4.4	3.2	7.0	27	9.5	5.2
3	2.4	3.5	2.9	2.4	7.3	5.1	5.7	65	6.8	26	9.9	5.3
4	2.7	3.5	3.3	2.7	6.4	5.3	6.0	350	8.0	25	11	5.2
5	2.9	3.5	2.6	3.4	5.8	9.0	5.9	274	12	24	9.9	5.1
6	2.9	3.3	2.8	3.4	5.4	5.9	9.5	114	11	22	12	5.3
7	2.8	3.7	2.6	3.2	5.5	4.9	8.9	110	9.4	20	15	4.9
8	2.8	3.1	2.4	2.9	5.2	5.1	7.4	85	8.4	21	11	4.8
9	2.8	2.8	2.8	2.5	5.0	3.9	6.4	70	11	22	9.4	4.8
10	2.9	2.6	3.0	2.0	4.7	3.9	5.4	57	515	21	8.8	5.1
11	2.6	2.8	3.3	1.8	4.1	3.8	5.3	43	351	20	8.4	5.4
12	2.5	2.9	2.6	1.6	4.3	4.0	4.9	33	215	20	8.0	6.0
13	2.6	2.9	2.0	1.4	4.5	4.3	4.2	27	86	20	7.5	5.9
14	2.8	2.8	1.3	1.3	4.6	5.1	3.9	22	61	18	7.2	6.3
15	3.3	2.9	.98	1.4	4.9	4.9	3.7	18	135	17	6.8	6.7
16	3.3	3.3	.90	1.3	4.5	4.4	3.6	15	218	17	6.5	6.9
17	3.4	3.7	.52	1.5	4.3	4.5	3.7	13	211	17	7.1	6.6
18	3.4	4.1	.46	1.8	4.1	4.3	3.4	11	150	15	9.3	6.4
19	3.5	4.2	.38	2.4	3.9	4.4	3.4	9.9	106	15	11	5.6
20	3.6	4.1	.34	3.5	3.9	4.9	3.4	9.0	83	15	11	4.9
21	3.7	3.8	.31	4.2	3.9	4.8	3.3	9.3	73	14	11	4.7
22	3.7	3.4	.29	4.7	4.2	4.4	3.2	8.9	64	13	11	4.6
23	3.7	3.7	.31	5.3	3.9	4.4	3.3	8.4	55	13	10	4.6
24	3.6	3.8	.29	5.6	3.9	4.6	2.9	7.9	48	13	8.5	5.8
25	3.3	3.8	.26	6.2	3.7	4.7	4.1	7.9	45	13	7.5	7.0
26	3.2	4.0	.33	6.3	3.5	4.2	11	7.9	42	13	7.0	7.4
27	3.4	3.8	.62	6.6	3.9	4.2	20	8.9	38	12	6.3	7.4
28	3.3	3.6	.88	7.1	3.5	4.1	45	9.4	36	11	5.8	7.6
29	3.2	3.3	.88	6.9	3.3	4.0	41	9.6	33	10	5.2	7.9
30	3.4	3.1	1.0	7.0	---	3.9	3.3	9.0	29	9.9	5.1	8.0
31	3.5	---	1.5	6.8	---	3.8	---	8.4	---	9.7	5.0	---
TOTAL	94.9	103.2	47.35	111.1	135.8	142.3	240.1	1426.6	2675.2	540.6	271.2	176.4
MEAN	3.06	3.44	1.53	3.58	4.68	4.59	8.00	46.0	89.2	17.4	8.75	5.88
MAX	3.7	4.2	3.3	7.1	7.3	9.0	45	350	515	27	15	8.0
MIN	1.7	2.6	.26	1.3	3.3	3.6	2.9	1.9	6.8	9.7	5.0	4.6
AC-FT	188	205	94	220	269	282	476	2830	5310	1070	538	350

CAL YR 1983 TOTAL 2707.08 MEAN 7.42 MAX 148 MIN .26 AC-FT 5370
WTR YR 1984 TOTAL 5964.75 MEAN 16.3 MAX 515 MIN .26 AC-FT 11830

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06425500 ELK CREEK NEAR ELM SPRINGS, SD

LOCATION.--Lat 44°14'54", long 102°30'10", in SW¼NW¼ sec.1, T.3 N., R.13 E., Meade County, Hydrologic Unit 10120111, on left bank near downstream end of county highway bridge, 1.4 mi downstream from Hay Draw, 5.0 mi southeast of Elm Springs, and 7.0 mi upstream from mouth.

DRAINAGE AREA.--540 mi^2, approximately.

PERIOD OF RECORD.--July 1949 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,304.49 ft National Geodetic Vertical Datum of 1929. Prior to Nov. 2, 1976, nonrecording gage, and prior to Feb. 1, 1967, at site 350 ft downstream at present datum.

REMARKS.--Records fair except those for winter period, Nov. 22 to Mar. 28, which are poor.

AVERAGE DISCHARGE.--35 years, 23.0 ft^3/s (16,660 acre-ft/yr); median of yearly mean discharges, 20 ft^3/s (14,500 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,540 ft^3/s Mar. 29, 1952 (gage height, 10.61 ft), from floodmarks, site and datum then in use, from rating curve extended above 5,100 ft^3/s; maximum gage height, 12.33 ft May 21, 1982; no flow for long periods in each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, about 17 ft, at former site, in May 1920, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 400 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 4	2100	*890	*8.70	June 12	1030	759	8.51

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.05	.00	.00	.00	10	4.1	400	13	28	5.5	.40
2	.00	.07	.00	.00	.00	10	4.3	450	12	28	5.3	.20
3	.00	.12	.00	.00	.05	9.0	7.0	420	11	28	4.6	.10
4	.00	.14	.00	.00	.10	9.0	[illegible]	600	11	29	3.5	.05
5	.00	.15	.00	.00	.40	8.0	[illegible]	813	10	26	3.7	.02
6	.00	.15	.00	.00	.50	8.0	7.5	632	11	24	3.7	.01
7	.00	.15	.00	.00	.60	8.0	6.5	376	10	23	3.7	.01
8	.00	.15	.00	.00	.80	7.0	5.8	250	9.3	23	2.8	.00
9	.00	.10	.00	.00	1.0	8.0	5.3	100	11	22	2.7	.00
10	.00	.10	.00	.00	1.1	9.0	4.7	80	17	22	2.0	.00
11	.00	.10	.00	.00	1.2	8.0	4.7	70	70	21	2.9	.00
12	.00	.20	.00	.00	1.3	9.0	5.3	60	546	20	2.6	.00
13	.00	.30	.00	.00	1.4	10	4.9	60	360	19	2.0	.00
14	.00	.33	.00	.00	1.5	12	4.3	50	189	18	1.6	.00
15	.00	.32	.00	.00	1.5	10	4.1	50	118	17	1.2	.00
16	.00	.25	.00	.00	2.0	3.0	4.1	40	107	16	1.1	.00
17	.00	.25	.00	.00	2.0	2.5	4.1	40	236	14	1.0	.00
18	.02	.25	.00	.00	2.5	2.0	3.9	30	215	12	1.2	.00
19	.17	.23	.00	.00	2.5	2.2	3.6	25	205	12	1.7	.00
20	.19	.23	.00	.00	3.0	2.5	3.5	23	143	12	3.6	.00
21	.15	.21	.00	.00	2.5	3.0	3.6	22	106	11	3.5	.00
22	.13	.20	.00	.00	2.5	4.0	3.3	21	83	9.6	3.1	.00
23	.13	.10	.00	.00	2.0	5.0	3.3	17	70	8.2	3.0	.00
24	.09	.10	.00	.00	2.0	6.0	3.3	17	58	11	3.2	.00
25	.08	.08	.00	.00	2.0	6.0	6.5	17	52	9.8	2.9	.00
26	.09	.06	.00	.00	2.0	5.0	79	16	48	8.2	2.4	.00
27	.05	.04	.00	.00	2.5	4.0	102	17	42	7.8	1.5	.00
28	.05	.02	.00	.00	2.5	3.5	108	14	38	7.9	1.5	.01
29	.05	.01	.00	.00	3.0	3.5	128	15	34	7.1	.95	.01
30	.05	.00	.00	.00	---	3.9	366	14	30	6.6	.88	.01
31	.05	---	.00	.00	---	4.4	---	13	---	5.8	.65	---
TOTAL	1.30	4.46	.00	.00	44.45	195.5	905.4	4772	2865.3	507.0	79.98	.82
MEAN	.04	.15	.00	.00	1.53	6.31	30.2	154	95.5	16.4	2.58	.03
MAX	.19	.33	.00	.00	3.0	12	366	813	546	29	5.5	.40
MIN	.00	.00	.00	.00	.00	2.0	3.3	13	9.3	5.8	.65	.00
AC-FT	2.	8.8	.00	.00	88	388	1800	9470	5680	1010	159	1.6

CAL YR 1983	TOTAL	5875.24	MEAN	16.1	MAX	562	MIN	.00	AC-FT	11650
WTR YR 1984	TOTAL	9376.21	MEAN	25.6	MAX	813	MIN	.00	AC-FT	18600

06427000 KEYHOLE RESERVOIR NEAR MOORCROFT, WY

LOCATION.--Lat 44°22'55", long 104°46'45", in NW¼NW¼ sec.27, T.51 N., R.66 W., Crook County, Hydrologic Unit 10120201, at reservoir dam on Belle Fourche River 12 mi northeast of Moorcroft.

DRAINAGE AREA.--2,000 mi^2, approximately.

PERIOD OF RECORD.--March 1952 to current year (monthend contents only).

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (Bureau of Reclamation datum). Prior to May 15, 1958, and Oct. 1, 1968, to Mar. 13, 1970, nonrecording gages, and May 15, 1958, to Sept. 30, 1968, water-stage recorder, all at present site and datum.

REMARKS.--Reservoir is formed by a zoned earth-fill dam completed by the Bureau of Reclamation Oct. 25, 1952. Storage began Feb. 12, 1952. Inactive storage, between elevations 4,036.0 ft and 4,051.0 ft, 7,950 acre-ft. Total capacity below elevation 4,099.3 ft (crest of spillway), 185,800 acre-ft. Siltation has eliminated dead storage. Figures given herein represent active contents. The reservoir provides flood control and water for irrigation in Wyoming and near Belle Fourche, SD.

COOPERATION.--Records furnished by the Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 200,744 acre-ft May 21, 1978 (elevation, 4,100.38 ft); minimum daily contents (since appreciable storage was attained), 6,030 acre-ft Mar. 8, 9, 1955 (elevation, 4,046.35 ft).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 83,239 acre-ft June 21-24 (elevation, 4,084.75 ft); minimum, 42,619 acre-ft Oct. 7, 8 (elevation, 4,074.61 ft).

MONTHEND ELEVATION, IN FEET NGVD, AND CONTENTS,
IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

Date	Elevation	Contents	Change in contents
Sept. 30	4074.59	42556	
Oct. 31	4074.79	43191	+635
Nov. 30	4074.76	43096	-95
Dec. 31	4074.81	43255	+159
CAL YR 1983			-8683
Jan. 31	4074.83	43319	+64
Feb. 29	4075.47	45399	+2080
Mar. 31	4078.89	57561	+12162
Apr. 30	4079.25	58944	+1383
May 31	4082.25	71394	+12450
June 30	4084.61	82540	-11146
July 31	4083.63	77766	-4774
Aug. 31	4082.94	74529	-3237
Sept. 30	4082.49	72473	-2056
WTR YR 1984			+29917

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06428500 BELLE FOURCHE RIVER AT WYOMING-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 44°44'59", long 104°02'49", in NE¼NW¼NW¼ sec.18, T.9 N., R.1 E., Butte County, Hydrologic Unit 10120202, on left bank 0.3 mi downstream from State line, 3.7 mi downstream from Oak Creek and 11 mi northwest of Belle Fourche, SD.

DRAINAGE AREA.--3,280 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1946 to current year. Records for water year 1947 incomplete, yearly estimate published in WSP 1729.

GAGE.--Water-stage recorder. Datum of gage is 3,095.7 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for winter period and/or no gage-height record, Nov. 23 to Mar. 15, which are poor. Diversions above station for irrigation of about 5,400 acres. Flow regulated by Keyhole Reservoir, usable capacity, 191,600 acre-ft, 143 mi upstream since Oct. 25, 1952. Water-quality records for the station are published in the annual report "Water Resources Data for Wyoming."

AVERAGE DISCHARGE.--38 years, 91.4 ft³/s (66,220 acre-ft/yr); median of yearly mean discharges, 88 ft³/s (63,800 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,400 ft³/s June 18, 1962 (gage height, 15.59 ft); no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,570 ft³/s at 1130 hours, June 19 (gage height, 13.99 ft); minimum daily discharge, 5.8 ft³/s Dec. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	20	[illegible]	13	25	43	94	263	93	157	95	20
2	23	21	17	15	26	45	85	195	90	149	94	20
3	21	[illegible]	18	18	26	45	82	414	80	141	94	20
4	23	[illegible]	16	22	24	43	79	941	78	139	88	20
5	23	25	10	25	22	41	74	1050	80	135	86	20
6	24	23	11	24	23	37	68	859	87	129	84	20
7	24	22	13	23	26	39	68	877	92	124	78	19
8	23	23	10	22	24	42	70	688	87	117	73	17
9	23	24	11	20	22	48	65	550	295	108	77	17
10	23	24	12	20	21	45	66	546	2830	102	75	17
11	22	23	17	20	21	47	80	537	2350	102	64	17
12	22	22	16	18	21	45	88	505	1650	97	49	20
13	22	23	14	16	21	45	90	422	1010	93	38	21
14	22	25	13	15	23	48	94	366	1660	89	32	21
15	22	27	12	14	27	43	89	310	1120	90	30	21
16	24	29	11	14	30	47	82	281	1720	80	32	20
17	24	28	10	13	27	43	73	276	1730	70	35	20
18	24	27	8.6	14	30	206	70	253	1130	69	18	21
19	27	29	8.4	15	35	233	66	217	2690	67	16	21
20	25	27	7.8	12	40	165	67	188	1760	68	15	19
21	24	26	7.4	14	45	272	69	165	892	66	16	18
22	24	21	6.8	16	50	429	68	147	599	84	16	18
23	38	20	6.4	17	47	378	68	138	448	141	17	19
24	50	18	5.8	19	45	368	68	126	369	137	27	22
25	41	16	7.4	20	45	321	72	112	317	126	28	23
26	32	16	9.2	19	43	308	97	105	277	129	28	23
27	28	13	10	19	40	334	171	91	236	122	20	24
28	26	10	11	23	35	263	185	109	226	130	9.5	25
29	24	12	10	21	40	179	183	103	193	124	7.4	26
30	22	14	9.4	22	---	133	190	96	171	107	8.7	26
31	21	---	12	25	---	108	---	87	---	99	16	---
TOTAL	792	652	346.2	568	904	4443	2721	11017	24360	3391	1366.6	615
MEAN	25.5	21.7	11.2	18.3	31.2	143	90.7	355	812	109	44.1	20.5
MAX	50	29	18	25	50	429	190	1050	2830	157	95	26
MIN	21	10	5.8	12	21	37	65	87	78	66	7.4	17
AC-FT	157	1290	687	1130	1790	8810	5400	21850	48320	6730	2710	1220

CAL YR 1983 TOTAL 28260.2 MEAN 77.4 MAX 460 MIN 5.8 AC-FT 56050
WTR YR 1984 TOTAL 51175.8 MEAN 140 MAX 2830 MIN 5.8 AC-FT 101500

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06428500 BELLE FOURCHE RIVER AT WYOMING-SOUTH DAKOTA STATE LINE--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1966 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	TEMPER-ATURE (DEG C)	HARD-NESS (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
OCT 26...	0815	35	--	6.5	870	230	73	100	2	7.8
JAN 17...	1645	13	--	.5	1500	400	120	150	2	12
APR 05...	0730	73	--	6.5	610	170	46	68	1	7.2
AUG 08...	0815	73	--	21.5	690	190	52	120	2	8.3

DATE	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)
OCT 26...	130	980	9.3	.50	4.1	1500	2.0	140	.00	.000
JAN 17...	270	1500	12	.40	13	2400	3.2	83	.50	.000
APR 05...	150	600	5.2	.60	7.8	990	1.4	196	.40	.050
AUG 08...	170	720	16	.60	11	1200	1.7	240	.00	.040

06430000 MURRAY DITCH AT WYOMING-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 44°34'35", long 104°02'58", in SW¼SW¼ sec.7, T.7 N., R.1 E., Butte County, Hydrologic Unit 10120203, on right bank 15 ft downstream from State line and 12 mi southwest of Belle Fourche, SD.

PERIOD OF RECORD.--June 1954 to current year (irrigation seasons only prior to October 1959).

GAGE.--Water-stage recorder. Altitude of gage is 3,440 ft, from topographic map.

REMARKS.--Records fair. Ditch diverts water from left bank of Redwater Creek, 2.0 mi upstream, for irrigation of about 700 acres. Flow maintained during irrigation season only. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 37 ft^3/s July 17, 1973; no flow for long periods in each year.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 35 ft^3/s Aug. 29 (gage height, 2.78 ft); no flow for long periods.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.2	.00	.00	.00	.00	.00	.00	.00	.00	3.7	15	17
2	9.1	.00	.00	.00	.00	.00	.00	.00	.00	3.7	11	17
3	9.1	.00	.00	.00	.00	.00	.00	.00	.00	3.8	15	14
4	6.3	.00	.00	.00	.00	.00	.00	.00	.00	3.5	21	12
5	8.4	.00	.00	.00	.00	.00	.00	.00	.00	3.7	20	12
6	9.9	.00	.00	.00	.00	.00	.00	.00	.00	3.6	19	11
7	10	.00	.00	.00	.00	.00	.00	.00	.00	3.3	18	16
8	10	.00	.00	.00	.00	.00	.00	.00	.00	2.5	18	19
9	10	.00	.00	.00	.00	.00	.00	.00	.35	6.1	8.8	17
10	11	.00	.00	.00	.00	.00	.00	.00	.00	9.5	9.5	16
11	12	.00	.00	.00	.00	.00	.00	.00	.00	11	9.2	11
12	12	.00	.00	.00	.00	.00	.00	.00	.00	13	8.9	13
13	13	.00	.00	.00	.00	.00	.00	.00	.00	13	9.7	13
14	13	.00	.00	.00	.00	.00	.00	.00	1.7	15	11	14
15	14	.00	.00	.00	.00	.00	.00	.00	.00	20	10	14
16	13	.00	.00	.00	.00	.00	.00	.00	1.6	20	8.8	14
17	6.4	.00	.00	.00	.00	.00	.00	.00	.00	21	8.7	15
18	5.2	.00	.00	.00	.00	.00	.00	.00	.00	26	8.5	16
19	6.3	.00	.00	.00	.00	.00	.00	.00	.00	23	8.6	12
20	6.8	.00	.00	.00	.00	.00	.00	.00	2.9	21	7.1	17
21	7.9	.00	.00	.00	.00	.00	.00	.00	5.1	16	2.8	26
22	7.6	.00	.00	.00	.00	.00	.00	.00	4.9	14	.00	19
23	10	.00	.00	.00	.00	.00	.00	.00	4.5	24	.00	21
24	6.3	.00	.00	.00	.00	.00	.00	.00	3.2	26	.00	22
25	5.1	.00	.00	.00	.00	.00	.00	.00	3.7	22	.00	18
26	5.0	.00	.00	.00	.00	.00	.00	.00	3.8	19	.00	12
27	5.1	.00	.00	.00	.00	.00	.00	.00	4.0	19	.00	12
28	5.2	.00	.00	.00	.00	.00	.00	.00	2.6	20	4.1	12
29	4.8	.00	.00	.00	.00	.00	.00	.00	3.4	18	35	12
30	.00	.00	.00	.00	---	.00	.00	.00	3.4	18	32	13
31	.00	---	.00	.00	---	.00	---	.00	---	18	16	---
TOTAL	250.70	.00	.00	.00	.00	.00	.00	.00	45.15	440.4	335.70	457
MEAN	8.09	.00	.00	.00	.00	.00	.00	.00	1.50	14.2	10.8	15.2
MAX	14	.00	.00	.00	.00	.00	.00	.00	5.1	26	35	26
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	2.5	.00	11
AC-FT	49	.00	.00	.00	.00	.00	.00	.00	90	874	666	906

CAL YR 1983 TOTAL 1782.70 MEAN 4.88 MAX 31 MIN .00 AC-FT 3540
WTR YR 1984 TOTAL 1528.95 MEAN 4.18 MAX 35 MIN .00 AC-FT 3030

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06430500 REDWATER CREEK AT WYOMING-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 44°34'26", long 104°02'54", in NW¼NW¼ sec.18, T.7 N., R.1 E., Butte County, Hydrologic Unit 10120203, on left bank 800 ft downstream from State line, 5.7 mi upstream from Crow Creek, and 12 mi southwest of Belle Fourche, SD.

DRAINAGE AREA.--471 mi^2.

PERIOD OF RECORD.--April 1929 to September 1931 and February 1936 to July 1937 (published as "near Beulah, WY"), June 1954 to current year.

REVISED RECORDS.--WSP 1309: 1931(M), 1936-37(M).

GAGE.--Water-stage recorder. Altitude of gage is 3,410 ft, from topographic map. Apr. 25, 1929, to Sept. 30, 1931, and Feb. 28, 1936, to July 31, 1937, nonrecording gage at site 2 mi upstream at different datum.

REMARKS.--Records good except those for winter period and/or no gage-height record, Dec. 17 to Mar. 5, which are fair. Large diversions for irrigation above station. Total flow passing State line may be obtained by adding flow of Murray ditch (see station 06430000). Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--32 years, 36.0 ft^3/s (26,080 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,440 ft^3/s Aug. 22, 1973 (gage height, 12.19 ft), from rating curve extended above 1,000 ft^3/s on basis of slope-area measurement at gage height 11.95 ft; no flow Aug. 13-15, 1929.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
June 10	1530	356	4.92	June 16	0500	*1960	*10.89

Minimum daily discharge, 5.1 ft^3/s Aug. 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	40	39	17	35	35	35	43	44	56	14	6.5
2	26	40	36	19	34	35	36	45	45	55	18	6.6
3	30	41	36	20	33	35	36	47	44	55	20	5.8
4	32	41	38	20	33	35	35	48	46	53	18	5.6
5	28	41	37	21	34	35	35	52	46	51	16	5.4
6	24	41	37	20	35	35	35	58	46	52	16	5.4
7	24	41	37	20	35	35	35	56	45	54	15	6.7
8	23	40	36	20	35	34	35	59	45	53	16	13
9	24	39	36	19	35	35	35	78	55	46	26	16
10	24	39	36	18	35	35	34	105	222	40	25	17
11	24	39	36	17	35	35	33	94	190	36	26	24
12	24	41	35	16	35	35	33	76	103	32	22	24
13	24	39	35	16	35	35	33	69	63	27	21	23
14	26	40	35	15	35	35	32	62	78	23	11	22
15	25	39	35	15	35	35	32	57	88	15	13	22
16	25	39	35	13	35	34	32	53	497	18	18	22
17	31	39	33	13	35	35	32	48	159	13	19	22
18	33	39	22	13	35	35	33	46	132	8.7	23	21
19	37	39	17	12	35	36	33	46	110	11	34	25
20	34	39	18	11	35	36	34	44	84	11	33	24
21	34	39	15	14	36	36	34	44	72	11	41	11
22	33	39	12	20	36	36	34	39	69	11	46	11
23	33	38	8.8	28	36	35	30	37	63	11	45	11
24	38	38	6.0	34	36	35	31	38	67	10	44	11
25	36	38	6.4	34	36	35	35	39	61	13	44	15
26	38	39	8.4	33	36	35	43	40	61	14	44	21
27	38	38	11	33	35	35	41	42	60	12	41	21
28	37	38	13	34	34	35	39	46	59	13	31	20
29	39	38	12	34	34	35	36	48	56	12	14	20
30	40	38	12	35	---	35	37	46	57	12	6.0	20
31	40	---	16	35	---	35	---	45	---	13	5.1	---
TOTAL	947	1179	789.6	669	1013	1087	1038	1650	2767	841.7	765.1	478.0
MEAN	30.5	39.3	25.5	21.6	34.9	35.1	34.6	53.2	92.2	27.2	24.7	15.9
MAX	40	41	39	35	36	36	43	105	497	56	46	25
MIN	23	38	6.0	11	33	34	30	37	44	8.7	5.1	5.4
AC-FT	188	2340	1570	1330	2010	2160	2060	3270	5490	1670	1520	948

CAL YR 1983	TOTAL	12917.2	MEAN	35.4	MAX	143	MIN	1.4	AC-FT	25620
WTR YR 1984	TOTAL	13224.4	MEAN	36.1	MAX	497	MIN	5.1	AC-FT	26230

06431500 SPEARFISH CREEK AT SPEARFISH, SD

LOCATION.--Lat 44°28'57", long 103°51'40", in SE¼NW¼ sec.15, T.6 N., R.2 E., Lawrence County, Hydrologic Unit 10120203, on right bank in city park in Spearfish, 500 ft downstream from fish hatchery and nearest tributary, and 9.8 mi upstream from mouth.

DRAINAGE AREA.--168 mi^2.

PERIOD OF RECORD.--October 1946 to current year.

REVISED RECORDS.--WSP 1116: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,640 ft, from topographic map. Prior to Dec. 5, 1946, nonrecording gage at same site and datum.

REMARKS.--Records good except those for period of no gage-height record, July 25 to Aug. 27, which are poor. Regulation by fish hatchery and by hydroelectric plant 0.5 mi upstream causes diurnal fluctuation, but since storage capacity is small, daily flows are not appreciably affected. Upstream diversions out of drainage basin to Whitewood Creek basin by the Homestake Mining Co. average about 10 ft^3/s. Figures of daily discharge do not include diversion by Homestake Mining Co. Several observations of water temperature and specific conductance were made during the year.

COOPERATION.--Figures of monthly diversion are furnished by Homestake Mining Co.

AVERAGE DISCHARGE.--38 years, 53.1 ft^3/s (38,470 acre-ft/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,240 ft^3/s May 15, 1965 (gage height, 10.53 ft), from rating curve extended above 520 ft^3/s on basis of slope-area measurement of peak flow; maximum gage height, 10.54 ft June 15, 1976; no flow for part of Oct. 18, 1970.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 5, 1904, reached a stage of 7.00 ft, site and datum of former gage near Spearfish, 1 mi upstream, drainage area, 157 mi^2; discharge about 5,000 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 285 ft^3/s at 2245 hours, June 17 (gage height, 7.31 ft); minimum daily, 19 ft^3/s Dec. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	56	49	62	47	47	66	71	103	85	64	51
2	53	56	55	64	50	47	71	69	87	75	66	52
3	56	54	54	64	49	47	69	78	94	79	80	53
4	56	52	57	68	50	51	71	82	97	82	68	52
5	57	55	57	72	47	51	72	84	94	78	62	50
6	57	55	37	68	50	59	72	84	93	73	60	48
7	61	53	48	60	53	58	75	86	91	70	58	48
8	59	51	47	58	53	55	63	90	90	72	58	47
9	63	51	45	56	54	56	68	107	114	71	58	46
10	62	52	45	54	54	53	64	125	214	70	60	49
11	62	51	45	54	53	57	64	129	233	65	60	47
12	63	58	45	61	54	55	72	124	199	63	60	45
13	61	57	43	62	55	50	74	111	176	62	62	46
14	56	56	42	64	56	48	64	112	198	64	62	46
15	60	56	41	56	48	55	64	162	162	67	64	45
16	59	59	40	54	48	53	64	180	178	72	66	46
17	59	58	38	50	51	52	68	163	181	65	66	45
18	60	57	36	47	49	53	81	137	194	64	64	44
19	64	55	34	43	51	59	75	122	183	67	62	44
20	69	55	32	41	50	65	75	116	183	63	60	44
21	72	53	27	48	48	68	73	113	174	63	60	44
22	70	51	22	61	38	69	70	114	146	64	60	45
23	75	50	20	59	44	66	73	109	139	63	58	47
24	75	48	19	57	46	68	75	104	134	66	58	47
25	71	50	24	54	47	66	76	95	122	64	56	46
26	70	54	34	52	48	63	74	91	121	64	56	44
27	72	52	38	53	50	68	53	88	124	62	54	43
28	72	52	38	53	48	63	65	87	120	62	53	41
29	72	53	50	55	48	62	74	81	106	62	54	44
30	68	49	56	51	---	62	73	81	103	62	51	46
31	57	---	60	48	---	65	---	85	---	64	50	---
TOTAL	1961	1609	1278	1749	1439	1791	2098	3280	4253	2103	1870	1395
MEAN	63.3	53.6	41.2	56.4	49.6	57.8	69.9	106	142	67.8	60.3	46.5
MAX	75	59	60	72	56	69	81	180	233	85	80	53
MIN	50	48	19	41	38	47	53	69	87	62	50	41
AC-FT	389	3190	2530	3470	2850	3550	4160	6510	8440	4170	3710	2770

CAL YR 1983 TOTAL 24273 MEAN 66.5 MAX 356 MIN 19 AC-FT 48150
WTR YR 1984 TOTAL 24826 MEAN 67.8 MAX 233 MIN 19 AC-FT 49240

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06433000 REDWATER RIVER ABOVE BELLE FOURCHE, SD

LOCATION.--Lat 44°40'02", long 103°50'20", in NW¼SE¼ sec.11, T.8 N., R.2 E., Butte County, Hydrologic Unit 10120203, on right bank at upstream side of bridge on U.S. Highway 212 in Belle Fourche, 0.5 mi upstream from Hay Creek and 0.9 mi upstream from mouth.

DRAINAGE AREA.--920 mi^2.

PERIOD OF RECORD.--November 1945 to current year. Records for water year 1946 incomplete, yearly discharge published in WSP 1309. Prior to October 1960, published as Redwater Creek above Belle Fourche.

REVISED RECORDS.--WSP 1389: 1954 (maximum gage height only).

GAGE.--Water-stage recorder. Altitude of gage is 3,000 ft, from topographic map. Prior to Dec. 13, 1946, nonrecording gage at same site and datum.

REMARKS.--Records fair except those for period of no gage-height record, June 10 to July 16, which are poor. Diversions for irrigation of about 13,000 acres above station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--39 years, 138 ft^3/s (99,980 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,400 ft^3/s June 16, 1962 (gage height, 11.69 ft), from rating curve extended above 6,000 ft^3/s on basis of slope-area measurement of peak flow; no flow at times in 1960, 1968-69, 1981-82.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 1	0015	580	3.69	a	--	*3950	b*7.46

a Sometime during period June 10-20.
b From floodmarks.
Minimum daily discharge, 17 ft^3/s July 26-29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	157	154	125	140	180	154	146	578	156	220	21	52
2	162	156	115	150	170	150	156	575	159	205	28	50
3	160	156	120	160	165	155	160	559	158	190	31	53
4	165	153	130	170	165	153	161	487	163	168	54	56
5	160	152	140	185	160	153	165	472	160	165	60	58
6	154	155	140	195	160	154	160	446	157	146	41	57
7	149	158	140	195	165	153	165	356	151	125	40	57
8	149	161	150	190	160	146	165	292	141	115	40	61
9	149	162	160	185	161	154	165	268	175	120	40	68
10	151	162	170	180	166	151	167	271	330	98	40	75
11	153	164	175	170	169	158	169	274	900	73	40	82
12	155	165	175	165	172	155	172	268	740	63	39	86
13	155	165	170	165	175	154	171	260	610	47	39	87
14	159	163	150	167	173	156	169	268	540	49	40	95
15	160	161	135	173	183	161	167	278	900	46	39	101
16	161	161	120	160	178	160	166	257	1000	40	36	106
17	162	161	110	140	178	162	172	256	1100	36	34	104
18	165	163	100	130	180	165	180	237	940	34	38	95
19	176	161	96	120	179	162	178	216	1000	33	46	97
20	173	162	90	130	180	162	178	208	1200	32	54	98
21	169	162	86	130	179	145	179	202	540	27	64	96
22	168	160	84	140	177	146	184	198	580	19	69	95
23	172	160	74	150	171	147	184	195	540	19	76	98
24	175	161	72	160	175	146	184	188	500	18	82	104
25	171	161	66	160	177	149	190	182	470	18	87	110
26	174	150	94	165	160	150	214	175	450	17	89	118
27	173	135	110	170	153	150	220	178	415	17	84	131
28	165	125	125	175	147	151	240	184	380	17	60	135
29	155	130	125	175	156	148	260	176	325	17	56	131
30	156	140	115	180	---	146	440	172	255	19	50	132
31	156	---	130	180	---	145	---	165	---	21	50	---
TOTAL	5009	4679	3792	5055	4914	4741	5627	8841	15135	2214	1567	2688
MEAN	162	156	122	163	169	153	188	285	505	71.4	50.5	89.6
MAX	176	165	175	195	183	165	440	578	1200	220	89	135
MIN	149	125	66	120	147	145	146	165	141	17	21	50
AC-FT	994	9280	7520	10030	9750	9400	11160	17540	30020	4390	3110	5330

CAL YR 1983 TOTAL 61247 MEAN 168 MAX 711 MIN 13 AC-FT 121500
WTR YR 1984 TOTAL 64262 MEAN 176 MAX 1200 MIN 17 AC-FT 127500

06433500 HAY CREEK AT BELLE FOURCHE, SD

LOCATION.--Lat 44°40'01", long 103°50'46", in NW¼SW¼ sec.11, T.8 N., R.2 E., Butte County, Hydrologic Unit 10120203, on right bank at intersection of Tenth Avenue and Jackson Street in Belle Fourche, 0.5 mi upstream from mouth.

DRAINAGE AREA.--121 mi².

PERIOD OF RECORD.--October 1953 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,005.18 ft National Geodetic Vertical Datum of 1929 (City of Belle Fourche bench mark). Prior to Dec. 8, 1953, nonrecording gage at site 300 ft downstream at same datum.

REMARKS.--Records good. Minor diversion to the stream at times from city reservoir overflow, which enters stream above gage. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--31 years, 1.59 ft³/s (1,150 acre-ft/yr); median of yearly mean discharges, 1.0 ft³/s (720 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 930 ft³/s June 19, 1972 (gage height, 9.15 ft); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
May 4	0045	50	5.27	June 11	1315	*132	*6.19

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.03	.12	.28	8.8	1.8	3.0	.00	.00
2	.00	.00	.00	.00	.01	.14	1.2	16	1.3	2.5	.16	.00
3	.00	.00	.00	.47	.01	.31	1.1	35	1.0	2.0	6.2	.00
4	.00	.00	.00	2.5	.00	.26	.99	37	1.0	1.8	8.0	.00
5	.00	.00	.00	3.0	.04	.26	.55	33	.96	1.7	9.8	.00
6	.00	.00	.00	4.1	.10	.27	.38	23	.83	1.6	9.6	.00
7	.00	.00	.00	3.5	.10	.48	.32	25	.76	1.5	6.3	.00
8	.00	.00	.00	1.5	.11	1.0	.26	21	.67	1.4	3.6	.00
9	.00	.00	.00	.97	.14	.14	.26	16	12	1.2	2.7	.00
10	.00	.00	.00	.97	.13	.15	.22	14	100	.88	.40	.00
11	.00	.00	.00	.60	.11	.18	.50	11	125	.73	.00	.00
12	.00	.00	.00	.41	.12	.20	.44	9.9	62	.51	.00	.00
13	.00	.00	.00	.45	.14	.29	.29	8.8	30	.35	.00	.00
14	.00	.00	.00	.01	.15	.47	.14	6.2	21	.46	.00	.00
15	.00	.00	.00	.01	.18	.57	.14	4.9	19	.74	.00	.00
16	.00	.00	.00	.01	.13	.45	.16	4.7	18	.96	.00	.00
17	.00	.00	.00	.01	.10	.69	.23	7.7	18	.13	.00	.00
18	.00	.00	.00	.01	.07	.45	.25	5.5	18	.00	.00	.00
19	.46	.00	.00	.00	.05	.35	.25	4.1	16	.00	.00	.00
20	.04	.00	.00	.00	.06	.59	.32	3.3	15	.00	.00	.00
21	.00	.00	.00	.00	.11	.49	.27	3.3	16	.31	.00	.00
22	.00	.00	.00	.03	.19	.38	.24	2.6	14	.59	.00	.00
23	.00	.00	.00	1.1	.19	.24	.21	2.2	10	.66	.00	.00
24	.07	.00	.00	2.2	.18	.27	.32	2.1	7.9	.08	.00	.00
25	.00	.00	.00	1.6	.15	.28	.50	1.9	6.5	.00	.00	.00
26	.00	.00	.00	1.2	.12	.30	.60	1.8	5.6	.00	.00	.02
27	.00	.00	.00	1.1	.10	.38	.70	2.3	5.0	.00	.00	.02
28	.00	.00	.00	.60	.07	.39	1.0	2.0	4.6	.00	.00	.01
29	.00	.00	.00	1.5	.07	.29	2.3	1.8	4.0	.00	.00	.00
30	.00	.00	.00	1.2	---	.26	5.7	1.6	3.5	.00	.00	.00
31	.00	---	.00	.29	---	.26	---	1.5	---	.00	.00	---
TOTAL	.57	.00	.00	29.34	2.96	10.91	20.12	318.0	539.42	23.10	46.76	.05
MEAN	.02	.00	.00	.95	.10	.35	.67	10.3	18.0	.75	1.51	.00
MAX	.46	.00	.00	4.1	.19	1.0	5.7	37	125	3.0	9.8	.02
MIN	.00	.00	.00	.00	.00	.12	.14	1.5	.67	.00	.00	.00
AC-FT	1.	.00	.00	58	5.9	22	40	631	1070	46	93	.1

CAL YR 1983	TOTAL	555.93	MEAN	1.52	MAX	50	MIN	.00	AC-FT	1100
WTR YR 1984	TOTAL	991.23	MEAN	2.71	MAX	125	MIN	.00	AC-FT	1970

06434500 INLET CANAL NEAR BELLE FOURCHE, SD

LOCATION.--Lat 44°42'14", long 103°49'23", in NE¼NW¼ sec.36, T.9 N., R.2 E., Butte County, Hydrologic Unit 10120202, on right bank 0.5 mi downstream from Crow Creek, 0.9 mi downstream from diversion dam on Belle Fourche River, and 2.5 mi northeast of Belle Fourche.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1945 to current year. Monthly diversions from Inlet Canal between station and reservoir for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 2,985.22 ft National Geodetic Vertical Datum of 1929. Prior to Dec. 10, 1946, nonrecording gage, and Dec. 10, 1946, to Nov. 26, 1949, water-stage recorder at site 0.8 mi upstream at same datum.

REMARKS.--Records fair except those for winter period, Nov. 26 to Feb. 7, which are poor. Records show actual diversions to Belle Fourche Reservoir (see station 06435000), from Belle Fourche River and Crow Creek, except for 5,830 acre-ft which was diverted for irrigation from the canal between the station and reservoir.

COOPERATION.--Records of diversion from the canal furnished by Bureau of Reclamation.

AVERAGE DISCHARGE.--39 years, 166 ft^3/s (120,300 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 1,410 ft^3/s May 16, 1982; no flow for some days in 1946-49, 1963, 1966, 1971-76, 1978-79, 1982-84.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	160	194	160	170	205	170	256	796	360	379	108	93
2	172	189	150	180	200	158	252	790	361	353	123	100
3	171	176	160	190	195	160	251	916	358	332	137	109
4	180	173	170	200	185	170	242	1170	280	306	182	117
5	178	172	175	210	180	181	234	1180	258	299	191	116
6	173	177	170	220	185	170	226	1180	256	274	132	111
7	168	178	170	220	195	172	224	1200	242	250	133	112
8	167	180	170	215	190	170	224	1180	237	231	127	118
9	170	179	180	210	188	164	222	1100	518	228	126	131
10	166	177	180	200	187	155	217	1030	1270	200	132	153
11	173	187	185	200	195	155	215	494	815	185	132	166
12	176	197	180	200	194	158	215	5.4	146	160	119	151
13	175	199	175	200	193	180	215	1.6	76	140	114	118
14	180	194	170	200	192	227	228	.69	33	101	109	131
15	180	190	160	190	192	203	234	.29	12	95	80	145
16	184	186	150	170	191	194	242	.00	274	89	67	146
17	185	190	130	160	191	250	236	.00	108	74	87	144
18	176	190	125	150	190	350	237	.00	2.2	74	99	135
19	203	187	120	140	188	404	232	.00	18	68	85	132
20	205	182	115	130	186	335	236	.00	70	48	66	144
21	192	182	110	150	177	338	244	.00	438	47	80	129
22	190	182	100	160	183	365	245	.00	41	56	77	131
23	198	182	90	170	182	385	248	172	.25	84	89	143
24	231	184	80	180	181	439	247	397	.00	146	93	155
25	237	175	90	180	181	402	266	390	.00	134	107	168
26	214	165	110	180	180	436	341	377	23	136	101	184
27	209	160	130	190	179	471	337	387	218	132	103	210
28	200	160	150	195	178	464	331	397	467	126	107	173
29	191	170	140	195	177	376	312	374	514	128	89	147
30	193	170	140	200	---	315	416	360	425	119	75	153
31	198	---	150	205	---	276	---	361	---	111	85	---
TOTAL	5795	5427	4485	5760	5440	8393	7625	14258.98	7820.45	5105	3355	4165
MEAN	187	181	145	186	188	271	254	460	261	165	108	139
MAX	237	199	185	220	205	471	416	1200	1270	379	191	210
MIN	160	160	80	130	177	155	215	.00	.00	47	66	93
AC-FT	1149	10760	8900	11420	10790	16650	15120	28280	15510	10130	6650	8260

CAL YR 1983 TOTAL 45198.00 MEAN 124 MAX 368 MIN .00 AC-FT 89650
WTR YR 1984 TOTAL 77629.43 MEAN 212 MAX 1270 MIN .00 AC-FT 154000

34500 INLET CANAL NEAR BELLE FOURCHE, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1968 to current year.
WATER TEMPERATURES: October 1968 to current year.

REMARKS.--Samples collected once daily by observer.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum observed daily, 3,100 micromhos Feb. 13, 1969; minimum daily, 335 micromhos Feb. 12, 1971.
WATER TEMPERATURES: Maximum observed daily, 29.0°C July 1, 1971, July 30, 1984; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum observed daily, 1,770 micromhos July 23; minimum observed daily, 520 micromhos June 19.
WATER TEMPERATURES: Maximum observed daily, 29.0°C July 30; minimum observed daily, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE, AIR (DEG C)	TEMPERATURE (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)
OCT										
06...	1100	170	1360	8.0	14.5	10.5	760	570	220	52
NOV										
09...	0900	180	1220	8.2	.5	4.5	700	480	200	49
DEC										
14...	1340	164	1280	8.4	>-5.0	.0	730	500	210	49
JAN										
13...	1330	199	1300	8.4	-2.0	1.5	700	490	200	49
MAR										
07...	1230	180	1380	8.1	-2.0	2.0	720	510	210	48
APR										
18...	1500	235	1230	8.3	16.0	14.0	700	510	200	48
MAY										
07...	1215	1190	920	8.2	14.0	8.5	350	260	91	30
JUN										
07...	1515	246	1280	8.4	21.0	16.0	650	590	180	49
JUL										
18...	1415	77	1380	--	32.0	24.5	850	670	230	66
AUG										
16...	1130	67	1650	8.4	23.5	21.5	800	630	220	62
SEP										
13...	1140	117	1440	8.3	17.0	16.0	800	610	220	60

DATE	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
OCT									
06...	29	8	.5	3.6	190	610	5.2	.30	10
NOV									
09...	22	6	.4	3.6	218	530	4.4	.40	9.6
DEC									
14...	19	5	.3	2.7	224	510	4.3	.30	10
JAN									
13...	25	7	.4	3.2	215	540	4.6	.30	10
MAR									
07...	24	7	.4	2.9	209	540	4.7	.30	8.1
APR									
18...	28	8	.5	4.1	184	520	4.4	.40	7.2
MAY									
07...	64	28	2	6.1	93	390	3.6	.40	7.3
JUN									
07...	39	11	.7	4.2	64	560	4.5	.40	8.2
JUL									
18...	83	17	1	8.4	179	810	7.3	.50	10
AUG									
16...	73	16	1	6.3	178	720	9.7	.50	9.8
SEP									
13...	41	10	.7	4.7	184	680	6.2	.40	9.8

> More than.

06434500 INLET CANAL NEAR BELLE FOURCHE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	BORON, DIS-SOLVED (UG/L AS B)
OCT 06...	1000	1.4	479	.36	.010	.010	.010	.03	100
NOV 09...	950	1.3	462	.42	.040	.020	.020	.06	90
DEC 14...	940	1.3	416	.49	.050	.060	.020	.06	70
JAN 13...	960	1.3	516	.60	.050	.030	.030	.09	90
MAR 07...	960	1.3	468	<.10	.040	.030	.020	.06	80
APR 18...	920	1.3	585	<.10	.050	.020	.020	.06	100
MAY 07...	650	.88	2080	.25	.230	.030	.020	.06	110
JUN 07...	880	1.2	587	<.10	.120	.030	.010	.03	110
JUL 18...	1300	1.8	275	<.10	.060	.020	.050	.15	200
AUG 16...	1200	1.6	219	.14	.030	<.010	.030	.09	160
SEP 13...	1100	1.5	358	.24	.030	.010	.030	.09	120

< Less than.

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1290	---	---	---	1230	---	---	1400	1110	---	1490	1470
2	1250	1260	---	---	1290	1250	1240	1380	1240	---	1480	1580
3	1240	---	---	---	1300	---	---	1340	1230	1330	1450	1640
4	1240	1230	---	1290	---	---	1220	1160	1210	---	1360	1520
5	1270	---	---	---	---	1250	1280	1020	1180	---	1360	1550
6	---	---	---	1290	1270	1240	1300	1040	1260	1370	1440	1580
7	1290	1230	---	---	1260	1240	---	1050	1260	---	1420	1600
8	---	---	---	---	1240	1240	---	1040	1270	---	1420	1580
9	---	---	1330	1280	1320	1240	1280	1060	1260	1390	1400	1450
10	1240	1210	---	---	1240	---	---	1100	790	1410	1400	1440
11	---	---	---	---	---	---	1280	1120	750	1440	1430	1440
12	1240	---	1150	---	---	1240	---	1260	723	1510	1430	1440
13	---	---	---	1240	1280	---	1300	---	930	---	1440	1480
14	1260	1260	---	---	1240	1290	---	---	987	---	1480	1450
15	---	---	---	---	1240	1290	---	---	1000	1530	1520	1460
16	---	1260	---	1230	1240	1290	1320	---	612	1560	1530	1370
17	1240	---	---	---	1240	---	---	---	1230	1620	1560	1430
18	---	1270	---	1230	---	---	1260	---	815	1640	1570	1460
19	1270	---	1200	---	---	1410	---	---	520	1670	1540	1480
20	---	---	---	1230	1240	1130	1240	---	589	1670	1460	1480
21	1240	1220	1210	---	1230	1010	---	---	---	1720	1430	1510
22	---	---	---	---	1270	---	---	---	758	1710	1440	1440
23	---	---	---	---	1130	870	1260	---	---	1770	1460	1450
24	1280	1210	---	---	1240	---	---	---	---	1670	1480	1430
25	1270	---	---	---	---	---	---	1180	936	1670	1600	1380
26	---	---	---	---	---	892	1220	1180	1120	1620	1630	1430
27	---	---	---	---	1250	895	---	1220	1200	---	1570	1330
28	1300	1280	---	---	1250	910	---	1190	842	1460	1550	1320
29	---	---	---	---	1270	---	---	1220	1260	1450	1450	---
30	---	1320	---	---	---	960	1300	1270	---	1460	1460	---
31	---	---	---	---	---	---	---	1280	---	1480	1430	---

06434503 INLET CANAL NEAR BELLE FOURCHE, SD--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		---		---	4.0	---	---	4.0	8.0	---	25.0	16.0
2		3.0		---	5.0	3.0	4.0	4.0	7.0	---	26.0	17.0
3		---		---	3.0	---	---	4.0	6.0	24.0	25.0	19.0
4		9.0		.0	---	---	5.0	5.0	7.0	---	23.0	20.0
5		---		---	---	2.0	6.0	6.0	6.0	---	25.0	17.0
6		---		.0	3.0	1.0	9.0	5.0	5.0	24.0	25.0	20.0
7		8.0		---	3.0	.0	---	5.0	6.0	---	24.0	16.0
8		---		---	4.0	1.0	---	6.0	6.0	---	23.0	14.0
9		---		.0	4.0	.0	9.0	10.0	7.0	24.0	21.0	16.0
10		3.0		---	4.0	---	---	11.0	7.0	23.0	23.0	15.0
11		---		---	---	---	10.0	11.0	10.0	25.0	22.0	15.0
12		---		---	---	1.0	---	10.0	6.0	24.0	28.0	17.0
13		---		.0	5.0	---	9.0	---	7.0	---	26.0	19.0
14		5.0		---	4.0	4.0	---	---	8.0	---	24.0	17.0
15		---		---	4.0	2.0	---	---	9.0	24.0	22.0	14.0
16		4.0		.0	3.0	.0	---	---	18.0	24.0	27.0	14.0
17		---		---	2.0	---	---	---	21.0	24.0	25.0	15.0
18		3.0		.0	---	---	---	---	25.0	26.0	24.0	16.0
19		---		---	---	4.0	---	---	22.0	25.0	24.0	18.0
20		---		.0	3.0	6.0	---	---	20.0	27.0	22.0	17.0
21		1.0		---	2.0	4.0	---	---	---	25.0	22.0	18.0
22		---		---	3.0	---	---	---	25.0	24.0	20.0	13.0
23		---		.0	4.0	5.0	---	---	---	23.0	21.0	10.0
24		.0		---	3.0	---	---	---	---	22.0	23.0	6.0
25		---		.0	---	---	---	11.0	25.0	25.0	71.0	7.0
26		---		---	---	5.0	---	10.0	26.0	26.0	21.0	8.0
27		---		---	1.0	5.0	---	8.0	24.0	---	23.0	7.0
28		.0		---	.0	4.0	---	9.0	25.0	25.0	24.0	8.0
29		---		---	.0	---	---	9.0	25.0	27.0	22.0	---
30		.0		.0	---	4.0	---	6.0	---	29.0	23.0	---
31		---		---	---	---	---	17.0	---	27.0	19.0	---

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06435000 BELLE FOURCHE RESERVOIR NEAR BELLE FOURCHE, SD

LOCATION.--Lat 44°44'12", long 103°40'27", in SW¼SE¼ sec.18, T.9 N., R.4 E., Butte County, Hydrologic Unit 10120202, at dam on Owl Creek, 9.8 mi northeast of Belle Fourche.

PERIOD OF RECORD.--January 1912 to current year (monthend contents only).

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929, adjustment of 1912. Prior to June 6, 1967, nonrecording gage at present site and datum.

REMARKS.--Offstream reservoir formed by earthfill dam. Storage began in May 1910; dam completed in April 1911. Conservation capacity, 185,170 acre-ft (1949 survey), between elevations 2,927.0 ft (lowest outlet) and 2,975.0 ft (crest of spillway weir). Dead storage below elevation 2,927.0 ft, 6,800 acre-ft. Figures given herein represent contents above elevation 2,927.0 ft. Water diverted from Belle Fourche River through Inlet Canal (see station 06434500) is stored in Belle Fourche Reservoir for irrigation.

COOPERATION.--Elevations and contents furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 197,400 acre-ft Apr. 30, 1919, May 20, 1920 (elevation, 2,974.9 ft); minimum observed, -3,000 acre-ft Sept. 30, 1936, water was lowered below dead storage level of 2,927.0 ft by opening holes in crib walls.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 180,830 acre-ft May 23 (elevation, 2,975.30 ft); minimum, 61,209 acre-ft Oct. 1 (elevation, 2,956.00 ft).

MONTHEND ELEVATION, IN FEET NGVD, AND CONTENTS,
IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

Date	Elevation	Contents	Change in contents
Sept. 30	2956.00	61200	
Oct. 31	2959.40	73950	+12750
Nov. 30	2961.33	85720	+11770
Dec. 31	2963.10	95460	+9740
CAL YR 1983			-55040
Jan. 31	2965.22	107920	+12460
Feb. 29	2967.03	119700	+11780
Mar. 31	2969.50	136600	+16900
Apr. 30	2971.64	152300	+15700
May 31	2974.98	178210	+25910
June 30	2974.37	174290	-3920
July 31	2969.79	138680	-35610
Aug. 31	2963.37	96970	-41710
Sept. 30	2958.38	68180	-28790
WTR YR 1984			+6980

06436000 BELLE FOURCHE RIVER NEAR FRUITDALE, SD

LOCATION.--Lat 44°41'27", long 103°44'14", in NW¼NE¼ sec.3, T.8 N., R.3 E., Butte County, Hydrologic Unit 10120202, on right bank 5 ft downstream from bridge on U.S. Highway 212, 2.5 mi northwest of Fruitdale and 8.8 mi downstream from point of diversion to Belle Fourche Reservoir.

DRAINAGE AREA.--4,540 mi², approximately.

PERIOD OF RECORD.--October 1945 to current year. Monthly discharge only for October 1945, published in WSP 1309.

GAGE.--Water-stage recorder. Altitude of gage is 2,925 ft, from topographic map. Prior to Apr. 9, 1947, nonrecording gage and Apr. 10, 1947, to Oct. 14, 1948, water-stage recorder, at site 100 ft upstream at same datum. Oct. 15, 1948, to Dec. 30, 1958, water-stage recorder and Dec. 31, 1958, to Sept. 23, 1959, nonrecording gage at present site and datum.

REMARKS.--Records fair. Flow regulated by Keyhole Reservoir since Feb. 12, 1952, usable capacity, 191,600 acre-ft, 180 mi upstream. At a point 8.8 mi above station, water is diverted to Belle Fourche Reservoir (see station 06435000) through Inlet Canal (see station 06434500), with other smaller diversions from the main stem and tributaries for irrigation. Total diversions for irrigation of about 60,000 acres above station. Several observations of water quality were made during the year.

AVERAGE DISCHARGE.--39 years, 88.4 ft³/s (64,050 acre-ft/yr); median of yearly mean discharges, 63 ft³/s (45,600 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,700 ft³/s May 20, 1982 (gage height, 14.32 ft); no flow at times in 1945, 1948, 1959-62, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,330 ft³/s at 0245 hours, June 20 (gage height, 9.73 ft); minimum daily discharge, 2.6 ft³/s Apr. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.0	7.2	4.1	3.8	4.0	2.8	3.4	12	7.6	16	8.6	8.0
2	4.6	7.5	4.1	3.8	4.0	2.8	3.2	15	7.7	17	11	8.0
3	4.9	7.3	4.1	3.8	3.8	3.0	3.2	26	7.0	17	12	7.7
4	4.8	7.3	4.1	3.9	3.7	2.9	3.4	258	7.5	18	22	7.8
5	4.7	7.5	4.0	4.1	3.5	2.8	3.6	584	8.2	19	13	7.4
6	5.1	7.2	3.9	4.3	3.4	2.8	3.6	303	13	17	11	7.4
7	5.5	7.2	4.0	4.9	3.3	2.8	3.2	332	7.1	16	9.6	6.7
8	5.5	7.1	4.1	5.1	3.4	2.9	3.1	204	7.7	20	8.7	6.2
9	5.8	7.0	4.1	5.1	3.5	3.0	2.6	66	14	20	9.4	5.9
10	6.4	6.8	4.1	4.8	3.4	3.3	3.0	15	2240	21	8.6	5.2
11	6.5	6.7	4.1	4.3	3.4	3.4	3.0	404	3100	14	7.0	5.4
12	6.2	6.5	4.1	3.9	3.4	3.6	3.1	921	2450	12	8.5	5.2
13	6.1	6.3	4.1	3.9	3.5	3.9	3.0	826	1440	14	9.3	6.0
14	6.1	6.2	4.1	3.9	3.5	3.9	3.1	741	1230	29	8.6	8.3
15	6.0	5.8	4.1	3.9	3.4	3.9	3.1	686	1820	29	9.3	12
16	6.1	5.9	4.1	3.7	3.3	3.7	3.5	666	1890	25	9.6	14
17	6.1	5.7	4.1	3.7	3.2	3.6	4.0	626	2390	26	10	14
18	6.2	5.8	4.1	3.7	3.1	3.5	3.8	583	1760	29	12	13
19	6.6	5.9	4.0	3.7	3.0	3.3	3.7	508	1920	27	13	12
20	7.2	5.7	4.0	3.8	3.0	3.4	3.6	450	3440	24	13	12
21	7.2	5.6	3.9	3.9	3.0	3.2	3.4	410	1580	13	12	12
22	7.0	5.5	3.8	3.9	3.0	3.2	3.6	385	1100	14	12	11
23	7.0	5.3	3.8	3.9	3.0	3.2	3.1	302	877	9.0	11	10
24	6.9	5.2	3.8	3.9	2.9	3.3	3.6	9.9	758	9.0	9.8	9.4
25	7.1	5.1	3.7	4.1	2.7	3.1	3.9	5.1	622	11	8.3	8.6
26	7.9	4.6	3.7	4.3	2.7	3.0	4.0	5.6	349	10	9.1	7.8
27	7.5	4.6	3.8	4.2	2.7	3.0	4.0	6.0	106	10	8.6	7.6
28	7.5	4.5	3.8	5.0	2.7	3.0	8.4	6.6	22	10	8.0	7.4
29	7.3	4.3	3.8	4.8	2.7	3.2	6.8	7.1	17	12	8.1	6.9
30	7.2	4.2	3.8	4.3	---	3.2	6.0	7.4	15	8.5	12	5.8
31	7.1	---	3.8	4.0	---	3.7	---	7.6	---	7.4	8.9	---
TOTAL	194.1	181.5	123.1	128.4	94.2	100.4	113.0	9378.3	29205.8	523.9	322.0	258.7
MEAN	6.26	6.05	3.97	4.14	3.25	3.24	3.77	303	974	16.9	10.4	8.62
MAX	7.9	7.5	4.1	5.1	4.0	3.9	8.4	921	3440	29	22	14
MIN	4.0	4.2	3.7	3.7	2.7	2.8	2.6	5.1	7.0	7.4	7.0	5.2
AC-FT	38	360	244	255	187	199	224	18600	57930	1040	639	513

CAL YR 1983 TOTAL 48019.3 MEAN 132 MAX 869 MIN 3.7 AC-FT 95250
WTR YR 1984 TOTAL 40623.4 MEAN 111 MAX 3440 MIN 2.6 AC-FT 80580

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06436170 WHITEWOOD CREEK AT DEADWOOD, SD

LOCATION.--Lat 44°22'48", long 103°43'25", in NW¼NE¼SW¼ sec. 23, T.5 N., R.3 E., Lawrence County, Hydrologic Unit 10120202, on left bank 1,000 ft downstream from box culvert where stream leaves city and at the junction of lower Main Street and truck route of highways U.S. 85 and A.H. 14 in Deadwood.

DRAINAGE AREA.--40.6 mi^2, approximately.

PERIOD OF RECORD.--October 1981 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,500 ft, from topographic map.

REMARKS.--Records good. Flow regulated by Homestake Mining Co. 3.5 mi upstream. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,660 ft^3/s May 15, 1982 (gage height, 5.54 ft); minimum daily, 3.5 ft^3/s Jan. 10, 1982.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 562 ft^3/s at 2145 hours, May 14 (gage height, 4.78 ft); maximum gage height, 5.03 ft Dec. 27 (backwater from ice); minimum daily discharge, 7.4 ft^3/s Dec. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	15	9.0	12	12	14	18	44	69	48	25	17
2	19	15	8.6	13	11	14	17	61	57	44	39	17
3	20	16	9.0	13	11	17	18	117	57	45	23	17
4	19	17	9.0	14	11	16	20	170	61	42	22	16
5	18	16	9.0	18	13	16	23	167	56	38	22	17
6	17	17	9.0	15	11	14	29	147	54	39	20	17
7	17	17	9.0	14	10	15	33	161	53	38	18	17
8	18	18	8.8	16	11	15	34	219	49	39	19	16
9	17	18	8.6	14	10	15	39	378	115	35	19	16
10	17	14	8.8	13	10	16	40	506	273	34	20	17
11	19	13	8.8	13	13	15	45	467	220	32	18	17
12	19	22	9.0	14	13	16	35	473	158	29	19	16
13	18	16	9.4	13	12	17	28	514	121	27	18	15
14	18	14	10	12	13	23	28	519	220	31	18	16
15	17	14	11	14	13	21	28	523	184	29	17	13
16	16	14	8.6	13	11	18	34	465	185	27	18	14
17	16	13	8.6	12	12	19	48	345	167	27	18	13
18	15	14	8.6	12	13	21	62	221	144	24	18	13
19	18	13	8.6	12	13	21	66	155	111	24	18	13
20	16	12	8.4	12	11	20	58	125	99	24	18	13
21	15	11	8.0	12	14	21	48	123	86	24	18	13
22	14	11	7.8	12	15	22	45	95	77	26	16	12
23	14	12	7.6	12	15	23	49	83	69	23	16	12
24	15	12	7.4	10	15	26	56	76	64	20	17	13
25	15	12	8.0	12	15	22	58	72	59	21	17	14
26	16	10	8.4	14	14	20	44	65	55	19	17	14
27	14	10	8.6	13	13	21	36	73	54	18	16	14
28	16	9.7	8.8	16	12	17	60	65	53	20	16	13
29	14	9.4	10	15	13	19	54	60	51	22	18	14
30	14	9.0	9.9	12	---	18	47	56	49	20	17	13
31	14	---	11	11	---	19	---	56	---	22	18	---
TOTAL	514	414.1	275.3	408	360	571	1200	6601	3070	911	593	442
MEAN	16.6	13.8	8.88	13.2	12.4	18.4	40.0	213	102	29.4	19.1	14.7
MAX	20	22	11	18	15	26	66	523	273	48	39	17
MIN	14	9.0	7.4	10	10	14	17	44	49	18	16	12
AC-FT	102	821	546	809	714	1130	2380	13090	6090	1810	1180	877

CAL YR 1983 TOTAL 14170.4 MEAN 38.8 MAX 479 MIN 7.4 AC-FT 28110
WTR YR 1984 TOTAL 15359.4 MEAN 42.0 MAX 523 MIN 7.4 AC-FT 30470

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06436180 WHITEWOOD CREEK ABOVE WHITEWOOD, SD

LOCATION.--Lat 44°26'32", long 103°37'44", in SE¼SE¼NE¼NE¼ sec.33, T.6 N., R.4 E., Lawrence County, Hydrologic Unit 10120202, left bank 90 ft downstream from Crook Mountain Road, 1.1 mi south of Whitewood.

DRAINAGE AREA.--56.3 mi².

PERIOD OF RECORD.--October 1982 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,680 ft, from topographic map.

REMARKS.--Records good except those for winter period, Nov. 28 to Jan. 31, which are poor. Flow affected by transbasin diversions for industrial and municipal water supplies. Several observations of water quality were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 684 ft³/s May 7, 1983 (gage height, 4.60 ft); minimum daily discharge, 9.0 ft³/s Nov. 30 to Dec. 3, 22-24, 1983.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 422 ft³/s at 0430 hours, June 14 (gage height, 3.99 ft); maximum gage height, 4.55 ft Jan. 2 (backwater from ice); minimum daily discharge, 9.0 ft³/s Nov. 30 to Dec. 3, 22-24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	17	9.0	10	13	17	21	50	72	50	22	15
2	22	18	9.0	11	12	16	23	57	57	47	34	16
3	22	18	9.0	12	12	17	25	86	57	46	23	16
4	22	18	9.5	14	12	17	24	114	63	43	20	15
5	20	18	10	15	12	18	27	114	55	40	20	16
6	19	18	10	14	12	17	31	105	54	39	19	15
7	19	18	10	13	12	21	37	114	57	38	17	15
8	19	19	10	13	13	30	36	125	59	40	17	15
9	20	18	10	13	13	23	39	180	110	38	17	15
10	18	18	10	13	12	30	40	266	235	36	17	15
11	22	16	10	12	13	16	47	242	185	35	16	15
12	21	24	11	12	13	17	42	241	154	33	16	15
13	20	20	12	11	13	18	38	254	132	31	16	14
14	20	18	13	11	14	22	37	250	184	33	16	16
15	21	17	13	11	14	23	38	253	175	32	16	14
16	19	16	12	10	13	20	41	218	171	31	17	14
17	20	16	11	10	14	20	48	179	153	28	19	14
18	19	17	10	10	13	21	54	141	145	27	18	13
19	21	16	10	10	14	21	56	117	119	25	17	13
20	21	15	10	10	13	19	55	104	108	26	17	13
21	19	15	10	11	14	19	49	104	97	25	17	14
22	18	16	9.0	11	15	20	46	88	89	29	15	13
23	18	15	9.0	11	15	20	47	77	80	25	14	14
24	19	14	9.0	11	15	23	52	71	72	22	15	14
25	17	13	10	11	15	24	56	67	67	24	16	15
26	19	12	10	12	16	22	51	63	64	21	15	13
27	18	11	11	13	16	21	48	72	60	20	15	16
28	18	12	11	14	22	20	57	65	56	21	14	15
29	18	10	11	13	22	21	55	59	55	22	15	15
30	17	9.0	11	13	---	21	51	57	51	21	15	15
31	17	---	11	13	---	21	---	55	---	20	16	---
TOTAL	605	482.0	320.5	368	407	635	1271	3988	3036	968	541	440
MEAN	19.5	16.1	10.3	11.9	14.0	20.5	42.4	129	101	31.2	17.5	14.7
MAX	22	24	13	15	22	30	57	266	235	50	34	16
MIN	17	9.0	9.0	10	12	16	21	50	51	20	14	13
AC-FT	120	956	636	730	807	1260	2520	7910	6020	1920	1070	873

CAL YR 1983 TOTAL 14858.5 MEAN 40.7 MAX 470 MIN 9.0 AC-FT 29470
WTR YR 1984 TOTAL 13061.5 MEAN 35.7 MAX 266 MIN 9.0 AC-FT 25910

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06436190 WHITEWOOD CREEK NEAR WHITEWOOD, SD

LOCATION.--Lat 44°32'30", long 103°34'16", in SE¼NW¼SE¼NE¼ sec.25, T.7 N., R.4 E., Lawrence County, Hydrologic Unit 10120202, on right bank 50 ft downstream from county highway bridge, 6.9 mi northeast of Whitewood.

DRAINAGE AREA.--77.4 mi², approximately.

PERIOD OF RECORD.--October 1981 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,175 ft, from topographic map.

REMARKS.--Records good. Small diversions above station for irrigation of 256 acres. Several observations of water quality were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,050 ft³/s May 20, 1982 (gage height, 4.52 ft); minimum daily, 4.0 ft³/s Jan. 10, 1982.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft³/s (revised) and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
May 12	2300	277	2.17	June 14	0630	273	2.27
June 9	2345	*611	*2.97				

Minimum daily discharge, 10 ft³/s Dec. 1-4, 23, 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	21	10	11	16	19	25	61	90	48	26	14
2	22	22	10	11	16	19	26	63	77	44	35	13
3	21	21	10	12	15	20	27	95	70	43	33	13
4	23	22	10	16	15	20	28	126	81	43	26	13
5	19	22	11	21	15	19	32	124	73	39	24	13
6	20	22	11	19	16	20	37	116	67	37	25	13
7	19	23	11	16	17	16	41	132	64	36	19	13
8	20	24	11	15	16	20	39	133	64	40	17	13
9	21	23	11	16	16	19	42	173	112	39	18	13
10	20	23	11	15	16	19	43	221	189	36	19	14
11	23	20	12	15	16	20	50	244	118	34	17	15
12	25	28	12	14	17	19	50	242	99	35	15	15
13	24	27	14	13	16	19	47	229	89	31	15	14
14	23	23	15	13	16	21	44	224	118	32	15	18
15	25	21	15	13	18	28	44	233	119	35	16	16
16	23	20	14	12	17	25	46	212	124	34	16	16
17	22	20	13	12	17	23	52	177	112	29	21	15
18	22	21	12	12	16	23	61	148	108	29	22	13
19	24	21	11	12	17	23	64	128	91	27	20	13
20	25	20	11	11	16	24	65	119	79	29	18	14
21	23	20	11	12	18	22	59	116	75	27	19	15
22	21	19	11	13	18	24	55	106	71	33	18	16
23	21	17	10	13	19	23	55	95	65	30	15	16
24	21	17	10	13	18	25	61	91	61	26	15	17
25	21	17	11	13	18	28	65	88	57	26	13	18
26	22	15	11	15	18	25	60	85	55	24	13	19
27	22	11	12	15	17	25	54	89	52	23	13	20
28	22	11	12	18	15	25	62	85	51	22	13	20
29	24	13	12	19	19	23	70	75	48	24	12	19
30	22	15	12	16	---	24	63	74	46	23	13	19
31	21	---	12	16	---	24	---	72	---	19	14	---
TOTAL	684	599	359	442	484	684	1467	4176	2525	997	575	460
MEAN	22.1	20.0	11.6	14.3	16.7	22.1	48.9	135	84.2	32.2	18.5	15.3
MAX	25	28	15	21	19	28	70	244	189	48	35	20
MIN	19	11	10	11	15	16	25	61	46	19	12	13
AC-FT	136	1190	712	877	960	1360	2910	8280	5010	1980	1140	912

CAL YR 1983	TOTAL	15224	MEAN	41.7	MAX	420	MIN	10	AC-FT	30200
WTR YR 1984	TOTAL	13452	MEAN	36.8	MAX	244	MIN	10	AC-FT	26680

06436198 WHITEWOOD CREEK ABOVE VALE, SD

LOCATION.--Lat 44°37'04", long 103°28'52", in SE¼NW¼NE¼NW¼ sec.35, T.8 N., R.5 E., Butte County, Hydrologic Unit 10120202, on left bank at point where South Canal crosses creek, 3.2 mi above mouth, and 3.7 mi west of Vale.

DRAINAGE AREA.--102 mi².

PERIOD OF RECORD.--November 1932 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,840 ft, from topographic map.

REMARKS.--Records good except those for winter period, Dec. 22 to Feb. 4, which are poor. Diversions above station for irrigation of about 800 acres. Several observations of water quality were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,070 ft³/s June 10, 1984 (gage height, 2.60 ft); minimum daily discharge, 7.8 ft³/s Sept. 19, 1984.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,070 ft³/s at 0245 hours, June 10 (gage height, 2.60 ft); minimum daily discharge, 7.8 ft³/s Sept. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	19	9.0	12	18	21	27	85	80	68	22	14
2	32	19	9.0	12	18	21	28	96	65	64	26	13
3	32	20	9.0	12	17	23	27	187	63	60	33	12
4	34	20	9.0	20	17	23	26	254	72	60	23	13
5	32	20	10	25	17	22	29	195	64	52	20	13
6	31	20	10	30	18	24	33	147	61	45	24	13
7	30	20	11	16	19	25	37	170	58	43	20	13
8	31	21	12	16	21	34	36	152	67	45	17	11
9	32	21	12	16	21	62	38	184	109	43	18	10
10	29	19	12	15	21	27	39	248	604	39	17	9.9
11	31	17	14	14	20	24	44	247	289	37	17	11
12	35	20	15	13	20	34	49	234	232	38	16	12
13	33	22	15	13	21	22	46	251	198	34	16	11
14	31	19	15	13	21	22	42	240	249	31	14	13
15	35	17	13	13	21	29	44	245	317	34	14	12
16	33	16	12	12	21	37	47	229	285	31	15	11
17	31	17	12	12	21	39	51	192	243	27	20	10
18	27	16	12	12	21	35	60	156	230	27	21	10
19	31	16	11	12	21	35	65	129	199	24	19	7.8
20	32	16	11	13	20	35	67	116	171	25	19	8.4
21	28	16	11	14	20	32	61	110	153	26	20	9.8
22	27	15	11	14	20	32	58	100	132	30	19	9.7
23	23	14	10	14	20	34	55	87	120	26	17	9.9
24	22	12	10	14	21	35	59	79	110	24	17	11
25	21	11	10	15	21	36	65	76	102	25	15	11
26	21	10	11	16	22	34	65	76	94	23	14	12
27	21	9.0	12	18	22	32	70	80	86	22	14	12
28	20	9.0	12	20	20	31	76	81	82	20	14	14
29	22	9.0	12	22	22	29	93	69	75	23	13	13
30	20	9.0	12	25	---	27	97	65	69	23	13	12
31	20	---	12	20	---	27	---	61	---	19	13	---
TOTAL	877	489.0	356.0	493	582	943	1534	4641	4679	1088	560	342.5
MEAN	28.3	16.3	11.5	15.9	20.1	30.4	51.1	150	156	35.1	18.1	11.4
MAX	35	22	15	30	22	62	97	254	604	68	33	14
MIN	20	9.0	9.0	12	17	21	26	61	58	19	13	7.8
AC-FT	174	970	706	978	1150	1870	3040	9210	9280	2160	1110	679

CAL YR 1983	TOTAL	16497.0	MEAN	45.2	MAX	400	MIN	9.0	AC-FT 32720
WTR YR 1984	TOTAL	16584.5	MEAN	45.3	MAX	604	MIN	7.8	AC-FT 32900

06436760 HORSE CREEK ABOVE VALE, SD

LOCATION.--Lat 44°39'08", long 103°21'59", in SE¼NE¼SE¼ sec.15, T.8 N., R.6 E., Butte County, Hydrologic Unit 10120202, on left bank 2.6 mi upstream from Dry Creek, 5.5 mi upstream from mouth, 3.0 mi northeast of Vale, and 4.5 mi southeast of Newell.

DRAINAGE AREA.--462 mi^2, approximately.

PERIOD OF RECORD.--October 1980 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,710 ft, from topographic map. April 1962 to September 1980, water-stage recorder, at site 2.7 mi downstream, at different datum.

REMARKS.--Records good except those for winter periods, Nov. 24 to Dec. 29 and Jan. 6 to Feb. 7, which are poor. Natural flow of stream affected by diversions for irrigation above station and by return flow from Belle Fourche Irrigation Project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,700 ft^3/s May 21, 1982 (gage height, 24.80 ft); minimum daily, 0.40 ft^3/s Dec. 23, 1983.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 6	0100	*1670	*10.68	June 16	1915	623	7.00
June 11	0945	613	6.95	June 21	0430	1140	9.10
June 13	0030	667	7.21				

Minimum daily discharge, 0.40 ft^2/s Dec. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56	5.3	2.7	6.4	8.0	7.6	9.9	83	48	54	73	66
2	46	4.9	2.9	6.4	7.6	6.8	9.6	211	60	48	76	65
3	35	4.2	3.1	7.3	7.2	8.5	11	318	64	44	80	68
4	26	3.8	2.7	7.1	6.8	8.3	11	671	72	34	67	67
5	21	3.6	2.7	8.3	6.4	7.4	9.8	1170	72	26	64	60
6	20	4.2	2.6	7.6	10	5.2	12	1570	71	22	62	57
7	16	3.8	2.6	6.8	15	4.7	12	975	47	23	63	54
8	12	3.4	2.7	5.8	18	3.2	12	650	48	38	57	57
9	7.1	3.4	2.5	5.4	16	3.7	12	535	81	33	49	64
10	4.6	6.7	2.8	5.6	13	3.7	13	308	249	32	38	53
11	4.2	9.7	3.2	5.2	12	3.4	14	199	478	38	49	58
12	3.8	8.9	3.0	4.6	10	3.1	15	150	532	40	60	63
13	2.9	7.1	2.8	4.4	10	5.8	14	115	485	54	60	66
14	2.2	7.2	2.6	4.0	10	5.8	15	82	166	65	48	66
15	2.5	7.5	2.0	3.5	11	4.9	15	63	266	73	57	67
16	2.2	7.6	1.4	2.8	9.9	4.2	14	47	527	66	62	65
17	2.9	8.8	1.0	2.2	9.3	6.6	14	36	392	58	74	63
18	2.8	7.7	.80	1.8	11	4.3	11	26	309	68	90	62
19	3.8	7.1	.70	1.9	11	5.7	11	20	302	81	102	49
20	5.4	5.7	.72	2.0	10	5.0	11	15	873	89	110	43
21	7.7	5.0	.60	3.3	13	8.7	12	16	906	102	99	45
22	8.2	4.9	.47	4.3	12	9.1	15	12	307	112	82	51
23	7.7	4.9	.40	5.6	13	8.5	17	10	231	119	70	57
24	7.6	4.2	.60	6.5	9.8	7.8	19	7.8	191	107	64	70
25	5.9	4.3	1.2	7.3	11	7.2	23	9.0	175	100	58	75
26	6.5	4.0	1.4	6.8	8.4	8.9	41	4.7	168	93	68	69
27	6.5	3.6	1.4	6.6	6.8	18	47	16	147	85	70	65
28	6.5	3.2	1.3	6.8	5.7	16	50	25	128	82	72	60
29	5.4	2.8	1.4	6.4	4.3	13	55	24	112	81	59	48
30	5.6	2.5	3.1	6.8	---	11	53	17	65	82	54	32
31	4.7	---	6.1	7.6	---	9.8	---	24	---	72	60	---
TOTAL	348.7	160.0	63.49	167.1	296.2	225.9	578.3	7409.5	7572	2021	2097	1785
MEAN	11.2	5.33	2.05	5.39	10.2	7.29	19.3	239	252	65.2	67.6	59.5
MAX	56	9.7	6.1	8.3	18	18	55	1570	906	119	110	75
MIN	2.2	2.5	.40	1.8	4.3	3.1	9.6	4.7	47	22	38	32
AC-FT	69	317	126	331	588	448	1150	14700	15020	4010	4160	3540

CAL YR 1983 TOTAL 10706.39 MEAN 29.3 MAX 150 MIN .40 AC-FT 21240
WTR YR 1984 TOTAL 22724.19 MEAN 62.1 MAX 1570 MIN .40 AC-FT 45070

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06437000 BELLE FOURCHE RIVER NEAR STURGIS, SD

LOCATION.--Lat 44°30'47", long 103°08'11", in SE¼NW¼ sec.3, T.6 N., R.8 E., Meade County, Hydrologic Unit 10120202, on right bank near upstream end of bridge on State Highway 34, 0.5 mi upstream from Bear Butte Creek, and 20 mi northeast of Sturgis.

DRAINAGE AREA.--5,870 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1945 to current year. Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 2,526.13 ft National Geodetic Vertical Datum of 1929. Prior to Oct. 31, 1946, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, Nov. 21 to Mar. 12, which are poor. Flow regulated by Keyhole Reservoir, usable capacity, 191,600 acre-ft, 246 mi upstream since February 1952. At a point 75 mi above station, water is diverted to Belle Fourche Reservoir (see station 06435000), through Inlet Canal (see station 06434500), with other small diversions from the main stem and tributaries for irrigation. Total diversion for irrigation of about 60,000 acres above station. Several observations of water quality were made during the year.

AVERAGE DISCHARGE.--39 years, 279 ft³/s (202,100 acre-ft/yr); median of yearly mean discharges, 235 ft³/s (170,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,400 ft³/s May 21, 1962 (gage height, 19.10 ft); no flow for many days in 1945, 1950, and Aug. 9, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,560 ft³/s at 0315 hours, June 16 (gage height, 12.15 ft); minimum daily, 4.5 ft³/s Dec. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	277	59	35	12	58	60	50	704	186	598	345	348
2	285	59	30	12	56	60	53	1350	290	584	353	363
3	197	59	31	12	54	60	66	1340	319	545	371	395
4	135	59	32	13	52	58	79	2130	348	502	370	425
5	104	60	35	15	50	60	79	2710	414	482	354	408
6	81	58	29	16	52	60	81	2690	457	427	366	361
7	73	56	30	17	54	58	76	2210	432	361	370	296
8	60	56	31	18	58	54	74	1610	409	339	306	267
9	54	56	32	19	62	50	72	1270	487	341	280	292
10	52	55	34	18	68	50	70	921	3110	265	255	335
11	48	54	36	17	66	53	74	691	5910	240	263	345
12	45	56	38	16	70	103	77	955	4140	228	272	357
13	44	56	37	15	74	76	74	1330	3230	219	289	351
14	46	58	35	14	72	58	67	1210	2160	235	289	344
15	46	61	32	13	70	60	62	1100	4150	247	280	333
16	46	61	30	12	66	59	59	1030	5520	299	298	330
17	48	59	25	11	62	56	59	958	5090	291	330	326
18	50	56	20	12	60	60	60	869	3670	302	385	330
19	57	58	15	11	64	67	64	785	4290	317	420	306
20	62	55	12	12	70	58	66	703	5010	347	562	263
21	68	54	10	14	74	59	68	642	4430	372	542	217
22	73	50	8.0	16	74	62	63	645	2630	394	485	196
23	70	50	6.0	19	72	65	53	591	2040	415	440	218
24	64	52	4.5	23	70	63	47	496	1730	427	449	284
25	59	52	4.7	28	66	59	50	329	1560	414	414	347
26	59	50	7.5	33	64	59	107	272	1380	416	369	360
27	55	42	8.5	38	62	71	150	249	1110	418	343	336
28	54	35	9.0	43	55	77	400	283	907	418	322	327
29	56	37	10	49	58	69	273	279	708	429	290	319
30	56	40	10	54	---	60	168	221	631	437	290	270
31	59	---	11	59	---	54	---	181	---	382	319	---
TOTAL	2483	1613	688.2	661	1833	1918	2741	30754	66748	11691	11021	9649
MEAN	80.1	53.8	22.2	21.3	63.2	61.9	91.4	992	2225	377	356	322
MAX	285	61	38	59	74	103	400	2710	5910	598	562	425
MIN	44	35	4.5	11	50	50	47	181	186	219	255	196
AC-FT	493	3200	1370	1310	3640	3800	5440	61000	132400	23190	21860	19140

CAL YR 1983 TOTAL 118812.2 MEAN 326 MAX 1480 MIN 4.5 AC-FT 235700
WTR YR 1984 TOTAL 141800.2 MEAN 387 MAX 5910 MIN 4.5 AC-FT 281300

06437000 BELLE FOURCHE RIVER NEAR STURGIS, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1954-58, 1969 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: August 1954 to September 1958, October 1968 to September 1971, October 1973 to current year.
WATER TEMPERATURES: August 1954 to September 1958, October 1968 to September 1971, October 1974 to current year.

REMARKS.--Samples collected once daily by observer.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 7,000 micromhos May 16, 1981; minimum daily, 650 micromhos Feb. 15, 1971.
WATER TEMPERATURES: Maximum daily, 30.5°C July 5, 1981; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum observed daily, 3,670 micromhos Dec. 29, Jan. 1; minimum observed daily, 870 micromhos June 18.
WATER TEMPERATURES: Maximum observed daily, 25.0°C Aug. 5; minimum observed daily, 0.0°C on many days during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE, AIR (DEG C)	TEMPERATURE (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM
NOV												
01...	1230	61	--	8.3	--	11.5	1200	--	260	130	180	25
DEC												
06...	1000	29	3190	8.3	--	.0	930	588	190	110	250	37
JAN												
05...	1000	14	3570	--	--	.5	1800	1400	360	210	290	26
FEB												
10...	1045	68	2250	8.4	--	.0	1100	843	210	140	240	33
MAR												
13...	1115	61	2260	8.3	--	4.5	1100	897	230	130	210	29
APR												
18...	0830	58	1840	8.3	--	11.0	910	738	180	110	160	27
MAY												
02...	1430	1190	1740	8.3	--	2.5	530	434	100	68	210	46
07...	1500	2130	932	8.2	--	10.0	300	211	67	31	89	39
JUN												
12...	1145	4120	940	--	--	15.5	370	288	93	33	73	30
JUL												
11...	1230	241	1680	8.3	--	27.0	820	672	190	87	110	22
AUG												
17...	1300	327	1760	8.6	--	24.5	870	720	210	83	110	21
SEP												
20...	1045	274	1730	8.4	19.5	17.0	860	716	210	81	100	20

DATE	SODIUM AD-SORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE, FET-LAB (MG/L AS HCO3)	CARBONATE, FET-LAB (MG/L AS CO3)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)
NOV												
01...	2	11	--	--	--	1200	29	--	--	--	--	--
DEC												
06...	4	12	--	--	338	940	74	.60	6.9	1800	4.2	<.010
JAN												
05...	3	13	--	--	380	2000	43	.50	10	3100	4.0	.010
FEB												
10...	3	10	--	--	--	1400	39	--	--	--	--	--
MAR												
13...	3	8.6	--	--	235	1300	34	.50	3.9	2100	4.0	.040
APR												
18...	2	9.7	--	--	--	920	28	--	--	--	--	--
MAY												
02...	4	8.1	--	--	--	790	31	--	--	--	--	--
07...	2	5.7	--	--	--	370	11	--	--	--	--	--
JUN												
12...	2	6.8	99	<1	88	440	6.4	.50	7.7	710	.50	1.40
JUL												
11...	2	8.5	--	--	146	830	14	.50	5.4	1300	.65	.050
AUG												
17...	2	9.3	--	--	147	900	14	.50	5.1	1400	.45	.050
SEP												
20...	2	8.4	--	--	143	910	10	.50	3.3	1400	.49	.030

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06437000 - BELLE FOURCHE RIVER NEAR STURGIS, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	ARSENIC DIS-SOLVED (UG/L AS AS)	BORON, DIS-SOLVED (UG/L AS B)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)
NOV											
01...	--	--	--	10	--	<10	<10	--	<50	<50	<50
DEC											
06...	--	<.010	<.010	9	490	<10	<10	--	<50	<50	<50
JAN											
05...	.03	<.010	.010	4	550	<10	<10	--	<50	<50	<50
FEB											
10...	--	--	--	5	--	<10	<10	--	<50	<50	<50
MAR											
13...	.12	.010	.060	6	320	<10	<10	--	<50	<50	<50
APR											
18...	--	--	--	8	--	<10	5	--	3	2	<50
MAY											
02...	--	--	--	4	--	<10	<40	--	<2	11	<50
07...	--	--	--	4	--	<10	<4	--	3	24	<50
JUN											
12...	--	.030	.020	11	150	<1	1	<1	2	42	<1
JUL											
11...	--	<.010	<.010	15	250	<10	<4	--	<20	<2	<50
AUG											
17...	--	<.010	<.010	--	270	--	--	--	--	--	--
SEP											
20...	--	<.010	.020	--	260	--	--	--	--	--	--

DATE	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)
NOV											
01...	--	60	<.2	--	<40	8	<10	--	--	<30	<1.0
DEC											
06...	--	330	--	--	<40	6	<10	--	--	<10	<.01
JAN											
05...	--	420	<.2	--	<40	8	<10	--	--	<100	<.01
FEB											
10...	--	230	<.2	--	<40	22	<10	--	--	<10	<.01
MAR											
13...	--	350	.4	--	<40	10	<10	--	--	<100	.33
APR											
18...	--	180	<.2	--	<15	5	<3	--	--	<30	.05
MAY											
02...	--	170	<.2	--	<15	14	<3	--	--	<3	.02
07...	--	55	<.2	--	<15	<2	<3	--	--	<3	.02
JUN											
12...	83	20	.5	3	8	2	<1	1000	<1	<3	<.01
JUL											
11...	--	12	<.2	--	<15	4	<3	--	--	<3	<.01
AUG											
17...	--	--	--	--	--	--	--	--	--	--	--
SEP											
20...	--	--	--	--	--	--	--	--	--	--	--

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06437000 BELLE FOURCHE RIVER NEAR STURGIS, SD--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1800	2460	3100	3670	2850	2690	2600	1950	1770	1470	1730	1760
2	1780	2490	3220	3400	3070	2540	2500	1850	1780	1480	1710	1740
3	1770	2380	3260	3430	2490	2430	2400	1550	1680	1460	1760	1690
4	1870	2460	3370	3630	2370	2450	2400	1440	1630	1530	1740	1650
5	1970	2540	3300	3460	2520	2530	2350	1160	1690	1530	1660	1770
6	2040	2470	3210	3410	2620	2600	2450	1060	1600	1530	1780	1700
7	2100	2460	3210	3190	2620	2780	2850	955	1680	1630	1790	1720
8	2130	2450	3100	2980	2610	3000	3000	1080	1660	1670	1750	1880
9	2200	2500	3050	2520	2570	2800	2700	1030	1580	1630	1780	1800
10	2190	2450	2900	2470	2570	2920	2500	1040	1410	1700	1800	1860
11	2230	2490	3000	2540	2700	2730	2300	1060	1170	1770	1850	1770
12	2240	2420	3010	2610	2730	2910	2150	1050	1030	1850	1850	1730
13	2220	2400	2980	2540	2820	2610	2050	1010	1020	1770	1850	1750
14	2170	2410	2930	2610	2870	2380	2000	935	1010	1880	1860	1720
15	2220	2400	2970	2780	2670	2480	1950	940	1010	1880	1800	1750
16	2200	2490	2930	2920	2680	2470	1900	930	960	1880	1850	1720
17	2180	2420	2920	3070	2730	2710	1900	920	1060	1770	1840	1740
18	2210	2400	3000	3290	2710	2770	1900	910	870	1840	1810	1740
19	2180	2470	3020	3300	2760	2910	1900	950	960	1860	1810	1700
20	2190	2520	3100	3330	2720	2730	1850	970	900	1820	1750	1760
21	2200	2560	3100	3390	2660	2610	1750	990	885	1820	1720	1800
22	2280	2200	3230	3390	2570	2630	1560	1020	975	1780	1750	1900
23	2320	2530	3310	3330	2480	2700	1500	1110	1110	1760	1740	1900
24	2480	2580	3300	3360	2580	2900	1480	1130	1170	1730	1740	1820
25	2530	2640	3520	3200	2580	2960	1410	1220	1230	1720	1750	1820
26	2450	2600	3550	3160	2590	2810	1340	1520	1260	1730	1690	1720
27	2460	2650	3570	2620	2740	2690	1560	1530	1300	1720	1780	1800
28	2520	2840	3600	2890	2770	2680	1550	1500	1430	1700	1780	1780
29	2570	3080	3670	2650	2810	2590	2060	1510	1480	1700	1830	1740
30	2520	3140	3580	2610	---	2870	2300	1530	1520	1680	1860	1720
31	2500	---	3500	3000	---	2830	---	1590	---	1670	1830	---

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.0	7.0	.0	.0	.0	1.0	6.0	4.0	16.0	19.0	24.0	17.0
2	11.5	8.0	.0	.0	.0	1.0	5.0	1.5	14.5	21.5	23.5	17.0
3	12.5	9.5	.0	.0	.0	1.0	3.0	3.0	16.0	22.0	24.0	16.5
4	9.0	9.5	.0	.0	.0	2.0	5.0	5.0	16.5	20.5	23.0	16.0
5	10.0	8.5	.0	.0	.0	.5	7.0	7.0	16.5	20.0	25.0	15.5
6	9.5	6.0	.0	.0	.0	1.0	6.5	7.0	20.0	20.0	24.0	18.5
7	12.5	7.0	.0	.0	.0	.5	9.5	7.5	17.0	20.0	23.0	15.5
8	9.0	6.5	.0	.0	.0	.5	7.5	9.0	16.0	21.0	22.0	14.0
9	16.5	4.0	.0	.0	.0	2.0	8.5	10.0	16.5	22.0	20.5	14.0
10	12.5	2.0	.0	.0	1.0	1.0	9.5	12.0	13.5	21.5	21.0	15.5
11	10.5	1.5	.0	.0	1.0	1.0	11.5	12.5	14.0	20.0	21.5	15.0
12	7.0	3.5	.0	.0	1.0	.5	5.5	12.5	15.5	21.5	22.0	15.5
13	5.5	2.0	.0	.0	1.0	1.5	5.5	15.0	17.0	22.0	23.0	16.0
14	7.0	1.5	.0	.0	.5	1.0	5.5	14.0	18.0	22.0	22.5	15.0
15	6.5	1.0	.0	.0	1.0	1.5	12.0	15.0	20.0	21.5	22.0	14.0
16	7.0	1.5	.0	.0	.5	.5	9.5	17.5	19.5	22.0	22.0	13.0
17	6.5	1.5	.0	.0	.5	.5	9.0	16.0	21.0	20.5	22.5	15.0
18	8.0	3.0	.0	.0	1.0	.5	9.0	17.0	20.0	21.0	22.5	16.0
19	7.0	1.5	.0	.0	1.0	2.0	8.5	15.5	20.0	23.0	22.0	16.5
20	5.0	.5	.0	.0	1.0	3.5	9.0	17.0	21.5	22.5	22.5	16.0
21	6.5	.0	.0	.0	1.0	3.0	9.0	17.0	21.0	23.0	19.5	16.0
22	6.5	.0	.0	.0	1.0	7.0	7.5	14.5	22.0	24.0	19.0	12.0
23	7.5	.0	.0	.0	1.0	5.0	9.5	14.0	20.0	21.5	19.0	10.5
24	9.0	.0	.0	.0	1.0	6.0	8.5	10.0	20.0	20.0	21.5	16.5
25	7.5	.0	.0	.0	.5	7.0	9.0	12.0	21.0	21.0	21.5	5.5
26	6.5	.0	.0	.0	.5	5.0	7.5	11.0	21.5	22.5	22.0	6.0
27	7.0	.0	.0	.0	.5	5.5	1.0	11.5	21.0	21.0	20.5	7.0
28	8.0	.0	.0	.0	.5	3.0	.5	9.0	22.0	21.0	20.5	6.5
29	6.0	.0	.0	.0	1.0	4.0	1.0	12.0	22.0	22.5	19.0	5.0
30	6.5	.0	.0	.0	---	3.0	3.0	15.0	21.0	24.5	16.5	5.5
31	7.0	---	.0	.0	---	5.0	---	18.5	---	24.0	17.5	---

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06438000 BELLE FOURCHE RIVER NEAR ELM SPRINGS, SD

LOCATION.--Lat 44°22'11", long 102°33'56", in NE¼NE¼ sec.29, T.5 N., R.13 E., Meade County, Hydrologic Unit 10120202, on right bank 10 ft downstream from highway bridge, 4.3 mi northwest of Elm Springs and 4.7 mi downstream from Hay Creek.

DRAINAGE AREA.--7,210 mi^2, approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1928 to June 1932, March 1934 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 786: Drainage area. WSP 926: 1929, 1931(M), 1935, 1937.

GAGE.--Water-stage recorder. Datum of gage is 2,171.60 ft National Geodetic Vertical Datum of 1929. Prior to July 27, 1939, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period and/or no gage-height record, Oct. 13 to Mar. 4 and Aug. 13 to Sept. 16, which are poor. Flow regulated by Keyhole Reservoir, usable capacity, 191,600 acre-ft, 304 mi upstream since February 12, 1952. At a point 133 mi above station, water is diverted to Belle Fourche Reservoir (see station 06435000), through Inlet Canal near Belle Fourche (see station 06434500), with other smaller diversions from the main stem and tributaries for irrigation. Total diversion for irrigation of about 60,000 acres above station.

AVERAGE DISCHARGE.--53 years (water years 1929-31, 1935-84), 364 ft^3/s (263,700 acre-ft/yr); median of yearly mean discharges, 360 ft^3/s (261,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,100 ft^3/s June 8, 1964 (gage height, 15.90 ft), from rating curve extended above 23,000 ft^3/s; maximum gage height, 18.22 ft May 21, 1982; no flow for many days in 1936-37, 1939-40, 1961-62, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 1927 reached a stage of 21.8 ft. Flood in spring of 1933 reached a stage of about 20 ft, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,660 ft^3/s at 1800 hours, June 11 (gage height, 9.37 ft); minimum daily discharge, 1.5 ft^3/s Dec. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	253	66	34	2.3	150	74	73	1680	230	620	296	350
2	293	66	31	2.1	140	78	74	3290	230	620	259	390
3	300	64	33	2.1	130	74	88	2840	330	588	335	420
4	218	60	39	2.0	120	72	109	3570	357	554	292	470
5	154	58	37	2.1	110	70	101	4370	395	507	317	410
6	130	56	32	2.3	100	72	96	3900	470	490	333	350
7	108	55	34	2.7	95	57	87	3330	480	446	343	310
8	97	34	37	3.2	100	50	87	2570	456	405	350	290
9	89	31	40	3.5	105	49	85	1890	531	387	312	310
10	95	29	43	3.3	105	66	84	1500	1590	384	311	330
11	81	32	45	3.1	100	69	79	1180	8380	315	301	350
12	81	32	48	3.0	98	65	82	996	6690	272	341	360
13	78	34	50	2.9	94	75	79	1380	4690	250	330	370
14	78	35	40	2.8	90	90	75	1390	3620	236	320	370
15	75	37	30	2.7	86	77	74	1260	5000	251	310	360
16	74	37	15	2.6	84	60	68	1170	6000	273	320	360
17	70	39	7.0	2.5	84	69	64	1100	5600	324	360	350
18	70	40	5.6	2.4	82	81	61	1020	5000	308	450	345
19	80	39	4.5	2.6	82	103	58	945	4500	314	520	351
20	78	37	3.6	2.5	84	94	59	865	5400	312	640	317
21	74	35	2.9	2.8	86	76	66	789	6000	329	600	276
22	70	35	2.3	4.0	86	75	73	733	5000	340	560	218
23	70	37	1.8	6.0	84	81	75	724	3000	365	520	190
24	76	40	1.5	8.0	80	85	70	670	2000	404	500	230
25	80	40	1.6	15	76	81	77	565	1700	391	480	302
26	80	38	1.8	25	74	75	233	432	1500	370	450	361
27	78	34	1.9	40	70	77	353	372	1300	372	420	367
28	76	31	2.0	60	64	89	347	345	1100	359	380	348
29	74	35	2.3	80	68	88	423	368	800	353	350	342
30	70	36	2.1	120	---	86	795	360	700	362	320	330
31	70	---	2.4	160	---	82	---	292	---	354	330	---
TOTAL	3320	1242	631.3	573.5	2727	2340	4095	45896	83049	11855	11950	10127
MEAN	107	41.4	20.4	18.5	94.0	75.5	137	1481	2768	382	385	338
MAX	300	66	50	160	150	103	795	4370	8380	620	640	470
MIN	70	29	1.5	2.0	64	49	58	292	230	236	259	190
AC-FT	659	2460	1250	1140	5410	4640	8120	91030	164700	23510	23700	20090

CAL YR 1983 TOTAL 126635.3 MEAN 347 MAX 1620 MIN 1.5 AC-FT 251200
WTR YR 1984 TOTAL 177805.8 MEAN 486 MAX 8380 MIN 1.5 AC-FT 352700

06438000 BELLE FOURCHE RIVER NEAR ELM SPRINGS, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: November 1974 to September 1981.
WATER TEMPERATURES: October 1974 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 5,000 micromhos Jan. 31, Feb. 7-11; minimum daily, 800 micromhos June 19, 1976.
WATER TEMPERATURES: Maximum daily, 33.5°C June 25, 1977; minimum, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE, AIR (DEG C)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT												
12...	1345	80	2140	8.4	12.5	10.0	1.3	740	10.2	94	K30	53
DEC												
07...	1500	35	3600	8.3	-2.5	.0	.50	706	--	--	<2	K25
FEB												
09...	1615	104	2260	8.3	--	.0	10	698	12.5	94	--	--
APR												
10...	1530	84	2700	8.3	18.5	16.5	6.8	695	9.7	110	<2	--
JUN												
04...	1430	344	1850	8.5	18.0	20.0	17	693	8.9	109	120	75
AUG												
09...	1500	309	1730	8.5	--	25.0	--	705	--	--	K32	K31

DATE	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
OCT												
12...	1000	873	230	110	160	25	2	9.4	158	1200	23	.50
DEC												
07...	1800	1480	370	210	260	24	3	12	307	2000	48	.60
FEB												
09...	930	728	190	110	250	37	4	9.7	203	1200	37	.40
APR												
10...	1100	945	210	140	260	34	3	11	157	1400	40	.50
JUN												
04...	810	669	180	88	140	27	2	7.9	146	890	21	.50
AUG												
09...	--	--	--	--	--	--	--	--	--	--	--	--

DATE	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)	PHOSPHORUS, DISSOLVED (MG/L AS P)
OCT												
12...	1.7	1930	1800	2.6	417	<.10	.060	.08	1.7	<.010	--	<.010
DEC												
07...	5.4	3370	3100	4.6	318	4.7	.200	.26	2.3	<.010	--	<.010
FEB												
09...	4.6	2170	1900	3.0	609	6.5	.220	.28	1.4	.030	.09	<.010
APR												
10...	<1.0	2290	--	3.1	519	2.6	.070	.09	1.0	.030	.09	.010
JUN												
04...	2.8	1570	1400	2.1	1460	.78	.100	.13	1.1	.040	--	.020
AUG												
09...	--	--	--	--	--	.50	.030	.04	1.0	.040	--	<.010

< Less than.
K Non-ideal colony count.

06438000 BELLE FOURCHE RIVER NEAR ELM SPRINGS, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
OCT 12...	<.010	10	7	<100	<10	<1	<1	<1	2	40	<1	120
DEC 07...	.010	--	--	--	--	--	--	--	--	--	--	--
FEB 09...	.010	<10	4	<100	<10	<1	<1	<1	3	50	<1	140
APR 10...	.030	--	--	--	--	--	--	--	--	--	--	--
JUN 04...	<.010	30	9	49	2.0	1	<1	<3	4	15	2	120
AUG 09...	<.010	--	--	--	--	--	--	--	--	--	--	--

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 12...	40	<.1	5	3	3	<1	2900	<1	10	--	--	--
DEC 07...	--	--	--	--	--	--	--	--	--	--	--	--
FEB 09...	70	.3	4	<1	15	<1	2300	<1	50	--	--	--
APR 10...	--	--	--	--	--	--	--	--	--	--	--	--
JUN 04...	8	.1	<10	5	4	<1	2100	<6	21	127	118	99
AUG 09...	--	--	--	--	--	--	--	--	--	174	145	99

< Less than.

06439000 CHERRY CREEK NEAR PLAINVIEW, SD

LOCATION.--Lat 44°44'38", long 102°03'11", in SW¼NE¼ sec.16, T.9 N., R.17 E., Meade County, Hydrologic Unit 10120113, on left bank 5 ft downstream from bridge on State Highway 73, 0.2 mi downstream from small right-bank tributary, 6.2 mi downstream from Red Owl Creek, and 11 mi northeast of Plainview.

DRAINAGE AREA.--1,190 mi², approximately.

PERIOD OF RECORD.--October 1945 to current year. Monthly discharge only for October and November 1945, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 2,158.06 ft National Geodetic Vertical Datum of 1929. Prior to June 8, 1948, nonrecording gage at same site and datum.

REMARKS.--Records good. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--39 years, 46.0 ft³/s (33,330 acre-ft/yr); median of yearly mean discharges, 27 ft³/s (19,600 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,500 ft³/s Apr. 1, 1952 (gage height, 22.63 ft); no flow for long periods in each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
June 19	0015	*3850	*14.54	June 22	2400	1030	9.56

No flow for many days.

Rating table (gage height, in feet, and discharge, in cubic feet per second)
(Stage-discharge relation affected by ice Jan. 29 to Feb. 4;
shifting-control method used Apr. 21-25, July 3-8, 15-28)

3.35	0	3.7	2.7	4.5	32	9.0	839
3.4	.08	3.8	4.8	5.0	66	11.0	1,640
3.5	.44	4.0	11	6.0	174	13.0	2,780
3.6	1.2	4.2	18	7.0	333	15.0	4,210

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	5.0	2.5	3.4	103	2.3	29	2.0	.00
2	.00	.00	.00	.00	8.0	2.5	3.9	139	2.3	24	1.8	.00
3	.00	.00	.00	.00	12	2.6	5.1	389	2.3	21	4.3	.00
4	.00	.00	.00	.00	11	3.2	4.6	755	2.1	19	2.5	.00
5	.00	.00	.00	.00	9.6	3.5	3.6	594	2.3	17	2.1	.00
6	.00	.00	.00	.00	8.6	3.5	2.7	447	2.1	15	2.1	.00
7	.00	.00	.00	.00	8.4	2.4	2.0	468	2.1	13	1.7	.00
8	.00	.00	.00	.00	7.8	1.9	2.2	283	413	13	1.3	.00
9	.00	.00	.00	.00	7.2	2.2	1.6	173	233	24	1.0	.00
10	.00	.00	.00	.00	6.5	1.9	1.4	130	64	47	.72	.00
11	.00	.00	.00	.00	5.9	2.0	1.2	99	68	33	.53	.00
12	.00	.00	.00	.00	5.4	2.0	.83	78	72	46	.39	.00
13	.00	.00	.00	.00	5.0	2.3	.68	61	178	32	.23	.00
14	.00	.00	.00	.00	8.9	2.8	.59	49	327	23	.09	.00
15	.00	.00	.00	.00	12	2.4	.42	40	372	18	.03	.00
16	.00	.00	.00	.00	11	1.7	.39	33	500	14	.00	.00
17	.00	.00	.00	.00	11	2.0	.30	27	1220	12	.00	.00
18	.00	.00	.00	.00	9.5	2.6	.20	21	3150	9.9	.00	.00
19	.00	.00	.00	.00	11	3.0	.15	16	3540	8.5	.00	.00
20	.00	.00	.00	.00	11	4.0	.09	12	2370	7.2	.00	.00
21	.00	.00	.00	.00	9.6	4.1	.05	11	1320	6.1	.00	.00
22	.00	.00	.00	.00	9.4	3.2	.04	8.7	857	5.5	.00	.00
23	.00	.00	.00	.00	8.1	2.8	.01	6.6	641	5.4	.00	.00
24	.00	.00	.00	.00	6.7	2.6	.00	5.1	182	5.2	.00	.00
25	.00	.00	.00	.00	5.4	2.2	.05	4.7	120	4.8	.00	.00
26	.00	.00	.00	.00	4.4	3.4	5.2	4.1	88	4.2	.00	.00
27	.00	.00	.00	.00	3.7	5.5	7.0	5.4	67	3.8	.00	.00
28	.00	.00	.00	.00	3.0	5.2	48	5.7	54	3.4	.00	.00
29	.00	.00	.00	.20	2.6	4.6	37	4.6	45	2.7	.00	.00
30	.00	.00	.00	5.0	---	3.8	58	3.6	37	2.5	.00	.00
31	.00	---	.00	4.5	---	3.3	---	2.8	---	2.2	.00	---
TOTAL	.00	.00	.00	9.70	227.7	91.7	190.70	3979.3	15933.5	471.4	20.79	.00
MEAN	.00	.00	.00	.31	7.85	2.96	6.36	128	531	15.2	.67	.00
MAX	.00	.00	.00	5.0	12	5.5	58	755	3540	47	4.3	.00
MIN	.00	.00	.00	.00	2.6	1.7	.00	2.8	2.1	2.2	.00	.00
AC-FT	.0	.00	.00	19	452	182	378	7890	31600	935	41	.00

CAL YR 1983 TOTAL 1321.39 MEAN 3.62 MAX 45 MIN .00 AC-FT 2620
WTR YR 1984 TOTAL 20924.79 MEAN 57.2 MAX 3540 MIN .00 AC-FT 41500

06439300 CHEYENNE RIVER AT CHERRY CREEK, SD

LOCATION.--Lat 44°36'10", long 101°29'24", in NE¼NW¼ sec.5, T.7 N., R.22 E., Ziebach County, Hydrologic Unit 10120112, on left bank 0.5 mi east of village of Cherry Creek, 0.5 mi downstream from Cherry Creek and 1.7 mi upstream from Plum Creek.

DRAINAGE AREA.--23,900 mi^2, approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,699.29 ft National Geodetic Vertical Datum of 1929. Prior to Oct. 18, 1960, nonrecording gage at present site and datum.

REMARKS.--Records good except those for winter period, Nov. 24 to Mar. 19, which are poor. Flow regulated by Angostura Reservoir 197 mi upstream (see station 06401000) since October 1949 and upstream reservoirs on Rapid Creek since 1956 and Belle Fourche River since 1952. Flow also affected by diversions for irrigation of about 70,000 acres and return flow from irrigated areas. Gage-height telemeter and Corps of Engineers satellite data-collection platform at station.

AVERAGE DISCHARGE.--24 years, 836 ft^3/s (605,700 acre-ft/yr); median of yearly mean discharges, 740 ft^3/s (536,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 55,900 ft^3/s May 22, 1982 (gage height, 15.77 ft); no flow Jan. 6 to Feb. 2, 1962.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 20,900 ft^3/s at 2200 hours, June 17 (gage height, 10.46 ft); minimum daily, 45 ft^3/s Dec. 23, 24.

Rating table (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 27 to May 11, May 20 to June 28;
stage-discharge relation affected by ice Nov. 24 to Mar. 19)

1.2	156	2.0	503	4.0	2,270	10.0	17,100
1.4	223	2.5	817	6.0	5,580	12.0	25,400
1.7	348	3.0	1,220	8.0	10,400		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	298	164	70	60	350	400	469	3770	700	1270	430	350
2	344	167	66	60	340	400	486	5370	619	1140	409	350
3	363	168	70	60	300	370	453	6910	571	1040	382	370
4	408	169	90	65	300	350	421	7020	647	1100	419	400
5	375	162	120	65	250	350	937	9460	867	1090	387	450
6	294	162	120	66	270	330	838	10100	1340	840	434	450
7	269	158	110	65	350	320	786	9260	975	774	439	430
8	251	168	110	63	400	300	610	7370	1190	721	443	427
9	217	178	110	60	450	310	564	6100	1000	839	429	400
10	204	184	105	60	430	310	490	4830	1510	1060	402	400
11	196	302	105	58	400	350	430	3610	4290	792	358	420
12	190	302	110	55	380	400	396	2930	11300	794	334	400
13	184	265	110	55	410	400	396	2340	9880	638	315	420
14	180	252	105	55	400	450	406	2830	8200	575	314	427
15	179	243	100	57	400	390	394	2700	6890	498	324	427
16	182	242	90	57	400	350	375	2470	8370	454	341	433
17	179	217	80	55	380	350	339	2160	16900	900	336	427
18	181	215	70	50	400	330	299	2000	17400	590	355	416
19	214	207	60	55	400	310	274	1880	14800	491	419	402
20	214	198	55	55	450	348	263	1690	12000	435	463	402
21	197	198	50	60	550	339	247	1500	11700	434	1110	384
22	185	206	50	70	500	339	231	1340	9740	417	1300	360
23	188	198	45	80	400	303	233	1220	6500	421	1000	339
24	188	220	45	85	400	303	252	1160	4930	437	1180	339
25	185	200	50	85	380	303	245	1120	3670	473	1100	324
26	177	150	55	80	380	303	307	1030	2970	485	862	319
27	174	130	55	85	370	396	2380	991	2570	452	720	339
28	169	110	53	100	370	448	3050	894	2190	440	536	364
29	162	100	53	150	380	571	1360	1160	1810	431	480	430
30	160	81	55	200	---	469	3350	860	1550	424	400	428
31	164	---	60	250	---	421	---	791	---	424	370	---
TOTAL	6871	5716	2427	2421	11190	11313	21281	106866	167079	20899	16791	11827
MEAN	222	191	78.3	78.1	386	365	709	3447	5569	674	542	394
MAX	408	302	120	250	550	571	3350	10100	17400	1270	1300	450
MIN	160	81	45	50	250	300	231	791	571	417	314	319
AC-FT	13630	11340	4810	4800	22200	22440	42210	212000	331400	41450	33300	23460

CAL YR 1983	TOTAL	219901	MEAN	602	MAX	5220	MIN	45	AC-FT	436200
WTR YR 1984	TOTAL	384681	MEAN	1051	MAX	17400	MIN	45	AC-FT	763000

06439300 CHEYENNE RIVER AT CHERRY CREEK, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 1975 to September 1976.
WATER TEMPERATURES: January 1975 to September 1976, October 1977 to September 1978.
SUSPENDED SEDIMENT DISCHARGE: October 1971 to September 1976.

INSTRUMENTATION.--Water-quality monitor June 16, 1977, to September 1979.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,400 micromhos Jan. 27, 28, 1975; minimum daily, 620 micromhos Apr. 25, 1975.
WATER TEMPERATURES: Maximum daily, 35.0°C Aug. 26, 1975; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 66,000 mg/L May 25, 1976; minimum daily mean, 80 mg/L Nov. 15-17, 1972.
SEDIMENT LOADS: Maximum daily, 2,530,000 tons June 12, 1972; minimum daily, 15 tons Dec. 14, 1973.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE, AIR (DEG C)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT												
28...	1200	171	1720	7.9	16.0	11.5	3.6	737	10.5	100	K40	K13
MAY												
23...	1130	1210	1360	8.0	22.0	17.0	200	725	8.3	91	K70	K97
AUG												
17...	1120	339	2130	7.5	28.0	26.5	21	726	7.4	98	--	K100

DATE	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
OCT												
28...	940	810	220	95	220	33	3	14	134	1200	74	.40
MAY												
23...	540	387	140	47	100	28	2	7.1	158	560	36	.50
AUG												
17...	870	758	200	90	180	31	3	11	116	1100	40	.50

DATE	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)	PHOSPHORUS, DISSOLVED (MG/L AS P)
OCT												
28...	.9	1960	1900	2.7	905	.37	.060	.08	.80	.040	.12	.040
MAY												
23...	8.9	1060	1000	1.4	3460	.37	.020	.03	1.0	.230	--	.070
AUG												
17...	6.0	1800	1700	2.4	1650	<.10	.040	.05	.30	<.010	--	.040

< Less than.
K Non-ideal colony count.

06439300 CHEYENNE RIVER AT CHERRY CREEK, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
OCT												
28...	.010	20	2	34	<.5	<1	<1	<3	4	8	<1	150
MAY												
23...	.030	<10	11	36	<1.0	<1	<1	<3	6	<3	2	85
AUG												
17...	.020	20	4	54	<2.0	<3	2	<9	4	23	3	230

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT									
28...	28	.3	<10	6	3	<1	2500	<6	12
MAY									
23...	5	.5	<10	4	<1	<1	1400	<6	9
AUG									
17...	10	<.1	<30	1	2	<1	2700	<18	33

< Less than.

06439430 COTTONWOOD CREEK NEAR CHERRY CREEK, SD

LOCATION.--Lat 44°40'28", long 101°24'16", in NW¼NW¼NE¼ sec.12, T.8 N., R.22 E., Ziebach County, Hydrologic Unit 10120112, on right bank at upstream side of highway bridge, 2.1 mi upstream from mouth, and 6.7 mi northeast of Cherry Creek.

DRAINAGE AREA.--120 mi², approximately.

PERIOD OF RECORD.--October 1982 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,810 ft, from topographic map.

REMARKS.--Records poor. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,700 ft³/s June 17, 1984 (gage height, 9.46 ft); no flow for long periods in each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 4,200 ft³/s May 18, 1982 (gage height, 13.03 ft), from slope-area measurement of peak flow.

EXTREMES FOR CURRENT PERIOD.--Water year 1983: Maximum discharge, 62 ft³/s at 0300 hours, May 13 (gage height, 4.50 ft), no peak above base of 100 ft³/s; no flow for many days.

Water year 1984: Peak discharges above base of 100 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
June 6	0115	427	6.46	June 14	2115	234	5.62
June 11	0930	158	5.20	June 17	1600	*1700	*9.46

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.03	.00	.00	.00
2	.00	.00	.00	.00	.00	.01	.00	.20	.01	.00	.00	.00
3	.00	.00	.00	.00	.00	.03	.00	.71	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.25	.00	.64	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.60	.00	.58	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	1.5	.00	.40	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	4.0	.00	.20	.00	.00	.00	.00
8	2.4	.00	.00	.00	.00	6.0	.00	.10	.00	.00	.00	.00
9	10	.00	.00	.00	.00	6.5	.00	.02	.00	.00	.00	.00
10	15	.00	.00	.00	.00	7.0	.00	.00	.00	.00	.00	.00
11	14	.00	.00	.00	.00	6.0	.00	.00	.00	.00	.00	.00
12	12	.00	.00	.00	.00	2.7	.00	9.1	.00	.00	.00	.00
13	10	.00	.00	.00	.00	1.8	.00	30	.00	.00	.00	.00
14	8.2	.00	.00	.00	.00	1.2	.00	15	.00	.00	.00	.00
15	3.4	.00	.00	.00	.00	.80	.00	4.1	.00	.00	.00	.00
16	1.9	.00	.00	.00	.00	.50	.00	3.0	.00	.00	.00	.00
17	1.3	.00	.00	.00	.00	.35	.00	1.9	9.4	.00	.00	.00
18	1.0	.00	.00	.00	.00	.25	.00	1.2	8.5	.00	.00	.00
19	.70	.00	.00	.00	.00	.20	.00	.78	12	.00	.00	.00
20	.50	.00	.00	.00	.00	.15	.00	.60	2.0	.00	.00	.00
21	.42	.00	.00	.00	.00	.10	.00	.55	.71	.00	.00	.00
22	.42	.00	.00	.00	.00	.07	.00	.55	.40	.00	.00	.00
23	.15	.00	.00	.00	.00	.05	.00	.50	.10	.00	.00	.00
24	.08	.00	.00	.00	.00	.03	.00	.50	.05	.00	.00	.00
25	.04	.00	.00	.00	.00	.02	.00	.80	.03	.00	.00	.00
26	.00	.00	.00	.00	.00	.01	.00	1.3	.01	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.60	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.35	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.25	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.10	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.05	---	.00	.00	---
TOTAL	81.51	.00	.00	.00	.00	40.12	.00	74.08	33.24	.00	.00	.00
MEAN	2.63	.00	.00	.00	.00	1.29	.00	2.39	1.11	.00	.00	.00
MAX	15	.00	.00	.00	.00	7.0	.00	30	12	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	16	.00	.00	.00	.00	80	.00	147	66	.00	.00	.00

WTR YR 1983 TOTAL 228.95 MEAN .63 MAX 30 MIN .00 AC-FT 454

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06439430 COTTONWOOD CREEK NEAR CHERRY CREEK, SD--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	1.8	.00	.19	.72	.00	.05	.00	.00
2	.00	.00	.00	.00	5.5	.00	.19	.59	.00	.03	.00	.00
3	.00	.00	.00	.00	6.2	.00	.19	.32	.00	.02	.00	.00
4	.00	.00	.00	.00	1.0	.00	.09	.16	.35	.01	.00	.00
5	.00	.00	.00	.00	.10	.00	.00	.05	.25	.00	.00	.00
6	.00	.00	.00	.00	.01	.00	.00	.00	94	.00	.00	.00
7	.00	.00	.00	.00	.01	.00	.00	.00	4.6	.00	.00	.00
8	.00	.00	.00	.00	.02	.00	.00	.00	3.4	.00	.00	.00
9	.00	.00	.00	.00	.03	.00	.00	.00	21	.00	.00	.00
10	.00	.00	.00	.00	.03	.00	.00	.00	56	.00	.00	.00
11	.00	.00	.00	.00	.02	.00	.00	.00	107	.00	.00	.00
12	.00	.00	.00	.00	.01	.00	.00	.00	51	.00	.00	.00
13	.00	.00	.00	.00	.00	.17	.00	.00	15	.00	.00	.00
14	.00	.00	.00	.00	.00	.69	.00	.00	95	.00	.00	.00
15	.00	.00	.00	.00	.00	.33	.00	.00	140	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	60	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	647	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	531	.00	.00	.00
19	.00	.00	.00	.00	.00	1.3	.00	.00	76	.00	.00	.00
20	.00	.00	.00	.00	.00	23	.00	.00	29	.00	.00	.00
21	.00	.00	.00	.00	.00	63	.00	.00	15	.00	.00	.00
22	.00	.00	.00	.00	.00	19	.00	.00	9.6	.00	.00	.00
23	.00	.00	.00	.00	.00	6.2	.00	.00	5.5	.00	.00	.00
24	.00	.00	.00	.00	.00	3.9	.00	.00	1.6	.00	.00	.00
25	.00	.00	.00	.00	.00	2.5	.00	.00	1.0	.00	.00	.00
26	.00	.00	.00	.00	.00	1.9	.30	.00	.70	.00	.00	.00
27	.00	.00	.00	.00	.00	1.8	.00	.00	.50	.00	.00	.00
28	.00	.00	.00	.05	.00	1.7	.82	.00	.30	.00	.00	.00
29	.00	.00	.00	.30	.00	.34	1.4	.00	.20	.00	.00	.00
30	.00	.00	.00	1.5	---	.37	1.1	.00	.10	.00	.00	.00
31	.00	---	.00	2.0	---	.25	---	.00	---	.00	.00	---
TOTAL	.00	.00	.00	3.85	14.73	126.45	4.28	1.84	1965.10	.11	.00	.00
MEAN	.00	.00	.00	.12	.51	4.08	.14	.06	65.5	.00	.00	.00
MAX	.00	.00	.00	2.0	6.2	63	1.4	.72	647	.05	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.0	.00	.00	7.6	29	251	8.5	3.6	3900	.2	.00	.00

CAL YR 1983	TOTAL	147.44	MEAN	.40	MAX	30	MIN	.00	AC-FT 292
WTR YR 1984	TOTAL	2116.36	MEAN	5.78	MAX	647	MIN	.00	AC-FT 4200

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06439980 LAKE OAHE NEAR PIERRE, SD

LOCATION.--Lat 44°27'30", long 100°23'29", in NE¼ sec.1, T.111 N., R.80 W., 5th principal meridian, Hughes County, Hydrologic Unit 10130105, in Pier A of Control Tower No. 1 of powerhouse intake structure of dam on Missouri River, 6.0 mi northwest of Pierre, 7.1 mi upstream from Bad River, and at mile 1,072.3.

DRAINAGE AREA.--243,500 mi^2, approximately.

PERIOD OF RECORD.--August 1958 to current year (monthend contents only). Prior to October 1967, published as Oahe Reservoir near Pierre.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Jan. 14, 1959, nonrecording gages at various locations upstream from outlet works, Jan. 14, 1959, to Sept. 30, 1962, recorder in Tower No. 1 of outlet works, all at same datum.

REMARKS.--Reservoir is formed by an earthfill dam; storage began in August 1958. Maximum capacity, 23,338,000 acre-ft below elevation 1,620.0 ft (top of spillway gates). Normal maximum, 22,240,000 acre-ft below 1,617.0 ft, of which about 2,390,000 acre-ft is designated for flood control. Inactive storage, 5,451,000 acre-ft below elevation 1,540.0 ft. Dead storage, 1,970 acre-ft below elevation 1,425.0 ft (invert of lowest outlet tunnel). Figures given herein represent elevations at powerhouse intake structure and total contents adjusted for wind effect.

The spillway consists of a gated chute with flat crest at elevation 1,596.5 ft, 8 gates, 50 by 23.5 ft each; design capacity, 300,000 ft^3/s. The outlet works consist of 7 turbines with a generating capacity of 85,000 kilowatts each. Water is used for flood control, navigation, power, and incidental uses.

COOPERATION.--Elevation and contents furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 22,681,000 acre-ft Aug. 22, 1975, affected by wind; minimum since initial filling, 14,815,000 acre-ft Sept. 25, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 22,583,000 acre-ft July 8; minimum contents, 18,481,000 acre-ft Dec. 30.

MONTHEND ELEVATION, IN FEET NGVD, AND CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

Date	Elevation	Contents	Change in contents
Sept. 30	1612.59	20649000	
Oct. 31	1609.80	19763000	-886000
Nov. 30	1607.63	19114000	-649000
Dec. 31	1605.70	18483000	-631000
CAL YR 1983			-652000
Jan. 31	1608.40	19300000	+817000
Feb. 29	1610.68	20064000	+764000
Mar. 31	1611.40	20298000	+234000
Apr. 30	1613.28	20876000	+578000
May 31	1615.60	21577000	+701000
June 30	1618.27	22524000	+947000
July 31	1616.78	22178000	-346000
Aug. 31	1613.80	21055000	-1123000
Sept. 30	1610.23	19959000	-1096000
WTR YR 1984			-690000

06440000 MISSOURI RIVER AT PIERRE, SD
(National stream-quality accounting network station)

LOCATION.--Lat 44°22'25", long 100°22'20", in SE¼ sec.21, T.5 N., R.31 E., Hughes County, Hydrologic Unit 10140102, at discontinued gaging station, near right bank on downstream side of pier of Chicago and North Western Transportation Company bridge, 1.3 mi (2.1 km) upstream from Bad River, 5.8 mi (9.3 km) downstream from Oahe Dam, and at mile 1,066.5 (1,716 km).

DRAINAGE AREA.--243,500 mi² (630,700 km²), approximately.

PERIOD OF RECORD.--Water years 1971 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1971 to September 1981.
WATER TEMPERATURES: July 1971 to September 1981.

COOPERATION.--Flow completely regulated by Lake Oahe (station 06439980) 5.8 mi (9.3 km) upstream. Discharge furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 895 micromhos Dec. 17, 1980; minimum daily, 530 micromhos Dec. 24, 1974, Dec. 17, 1980.
WATER TEMPERATURES: Maximum daily, 24.0°C July 31, Aug. 3, 1977, Aug. 21, 1980; minimum daily, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE, AIR (DEG C)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT												
20...	1410	40000	745	7.7	17.0	13.5	2.0	737	9.3	93	<1	K2
DEC												
28...	1350	35000	736	8.3	-14.0	1.0	3.2	--	14.6	--	K5	K13
FEB												
24...	1030	19500	709	8.1	3.5	2.5	1.1	730	14.1	108	86	22
APR												
26...	1345	15300	739	8.2	11.0	6.0	4.9	714	11.6	100	K140	68
JUN												
20...	1335	21300	740	8.2	22.5	14.0	1.8	734	9.9	100	K1	K4
AUG												
13...	1500	49000	750	7.8	37.0	17.0	.90	733	8.4	91	K1	K3

DATE	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
OCT												
20...	240	119	58	24	74	39	2	4.2	126	240	11	.50
DEC												
28...	240	72	57	23	71	39	2	4.6	165	210	12	.50
FEB												
24...	250	78	60	24	76	39	2	4.8	172	230	11	.50
APR												
26...	240	77	58	24	71	38	2	4.5	168	240	13	.60
JUN												
20...	240	66	56	23	73	40	2	4.3	169	220	11	.50
AUG												
13...	240	73	55	24	77	41	2	4.7	163	220	11	.60

< Less than.
K Non-ideal colony count.

06440000 MISSOURI RIVER AT PIERRE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)	PHOSPHORUS, DISSOLVED (MG/L AS P)
OCT 20...	5.0	509	500	.69	55000	<.10	.050	.06	.70	1.70	5.2	1.50
DEC 28...	5.0	502	480	.68	47400	<.10	.030	.04	.30	.010	.03	<.010
FEB 24...	5.3	506	520	.69	26600	<.10	.080	.10	.20	.010	.03	.010
APR 26...	5.3	549	520	.75	22700	<.10	.060	.08	1.1	.030	.09	.030
JUN 20...	4.5	497	490	.68	28600	5.0	.040	.05	.80	.020	--	.010
AUG 13...	4.2	503	490	.68	66500	.11	.050	.06	.90	.010	--	.010

DATE	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)
OCT 20...	1.20	<10	2	40	<.5	1	<1	<3	3	6	4	56
DEC 28...	.040	--	--	--	--	--	--	--	--	--	--	--
FEB 24...	.060	<10	2	41	<.5	<1	<1	<3	<1	6	<1	56
APR 26...	.020	40	1	43	1.5	<1	<1	<3	10	72	<1	55
JUN 20...	.010	<10	1	42	1.0	2	<1	<3	6	3	<1	57
AUG 13...	<.010	--	--	--	--	--	--	--	--	--	--	--

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)
OCT 20...	5	.3	<10	6	1	<1	570	<6	11
DEC 28...	--	--	--	--	--	--	--	--	--
FEB 24...	10	<.1	<10	<1	1	<1	570	<6	11
APR 26...	20	.3	<10	11	1	10	560	<6	19
JUN 20...	6	.1	<10	<1	1	<1	560	<6	12
AUG 13...	--	--	--	--	--	--	--	--	--

< Less than.

06441000 BAD RIVER NEAR MIDLAND, SD

LOCATION.--Lat 44°04'01", long 101°09'36", in NE¼NW¼ sec.7, T.1 N., R.25 E., Haakon County, Hydrologic Unit 10140102, on right bank at downstream side of bridge on State Highway 63, 0.4 mi southwest of Midland, 2.0 mi upstream from Mitchell Creek, and 3.7 mi upstream from Ash Creek.

DRAINAGE AREA.--1,460 mi^2, approximately.

PERIOD OF RECORD.--October 1945 to current year. Prior to February 1946 monthly discharge only, published in WSP 1309.

REVISED RECORDS.--WSP 2117: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,849.14 ft National Geodetic Vertical Datum of 1929. Prior to Feb. 21, 1961, nonrecording gage, and Feb. 21, 1961, to June 14, 1967, water-stage recorder at site 4.2 mi downstream at datum 15.72 ft lower. June 15 to July 26, 1967, nonrecording gage at site 30 ft upstream and July 27, 1967, to June 14, 1971, water-stage recorder at site 60 ft upstream, both at present datum.

REMARKS.--Records poor. Only daily discharges above 100 ft^3/s are being published.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,400 ft^3/s June 15, 1967 (gage height, 24.44 ft, from floodmarks, 20.10 ft, from floodmarks), at former site and datum, from rating curve extended above 16,000 ft^3/s; no flow for many days in each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,160 ft^3/s at 2000 hours, June 21 (gage height, 11.04 ft), no other peak above base of 500 ft^3/s; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

Daily discharge, in cubic feet per second, above 100 ft^3/s are given herewith:

May 2	101	June 13	192	June 21	535
June 5	119	June 14	213	June 22	508
June 6	150	June 16	266	June 23	196
June 7	130	June 17	208	June 24	104
June 12	122	June 18	149		

06441500 BAD RIVER NEAR FORT PIERRE, SD

LOCATION.--Lat 44°19'36", long 100°23'02", in NW¼NW¼ sec.10, T.4 N., R.31 E., Stanley County, Hydrologic Unit 10140102, on right bank at downstream side of highway bridge, 2.1 mi south of Fort Pierre, 4.3 mi downstream from Willow Creek, and 6.0 mi upstream from mouth.

DRAINAGE AREA.--3,107 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1928 to current year. Monthly discharge only for July 1932 to February 1934, published in WSP 1309.

REVISED RECORDS.--WSP 786: Drainage area. WSP 856: 1929(M), 1937.

GAGE.--Water-stage recorder. Datum of gage is 1,427.83 ft National Geodetic Vertical Datum of 1929. Prior to July 10, 1951, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, Jan. 1 to Mar. 21, which are poor. U.S. Weather Service gage-height telemeter and Corps of Engineers satellite data-collection platform at station.

AVERAGE DISCHARGE.--56 years, 147 ft³/s (106,500 acre-ft/yr); median of yearly mean discharges, 103 ft³/s (74,600 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 43,800 ft³/s June 18, 1967 (gage height, 29.55 ft); no flow for long periods in each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in April 1927 reached a stage of 30.89 ft, from floodmarks, discharge, about 55,000 ft³/s. Flood in July 1905 reached a stage about 2 ft higher than that in April 1927.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
June 4	0700	*13500	*25.47	June 15	1700	4230	14.23
June 10	0900	7900	20.25	June 20	2400	2000	9.64

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	23	14	9.7	25	3.6	67	3.0	.00
2	.00	.00	.00	.50	15	15	5.9	38	2.6	63	1.5	.00
3	.00	.00	.00	.80	10	13	82	51	26	51	.84	.00
4	.00	.00	.00	1.3	7.0	11	92	221	9030	44	94	.00
5	.00	.00	.00	1.5	5.0	10	50	271	5850	37	42	.00
6	.00	.00	.00	1.4	5.0	9.0	23	875	1060	30	12	.00
7	.00	.00	.00	1.0	5.5	8.0	20	278	459	25	4.2	.00
8	.00	.00	.00	.70	12	9.0	12	165	318	20	1.2	.00
9	.00	.00	.00	.40	11	10	33	127	195	15	.43	.00
10	.00	.00	.00	.25	10	10	28	110	5300	10	.40	.00
11	.00	.00	.00	.20	9.5	15	19	111	3660	7.5	.30	.00
12	.00	.00	.00	.10	9.5	25	82	113	5200	5.0	.25	.00
13	.00	.00	.00	.00	9.0	50	370	68	2010	3.9	.20	.00
14	.00	.00	.00	.00	9.0	100	399	43	1200	2.8	.15	.00
15	.00	.00	.00	.00	9.0	80	202	34	2630	2.2	.10	.00
16	.00	.00	.00	.00	9.0	20	106	25	1940	2.0	.09	.00
17	.00	.00	.00	.00	9.0	9.0	67	17	1760	1.7	.07	.00
18	.00	.00	.00	.00	8.5	10	45	12	1760	1.4	.05	.00
19	.00	.00	.00	.00	8.0	20	30	9.2	721	1.0	4.6	.00
20	.00	.00	.00	.00	10	50	20	7.2	729	.75	1.2	.00
21	.00	.00	.00	.00	20	150	14	6.3	1270	.50	1.0	.00
22	.00	.00	.00	.00	40	135	10	5.6	408	.36	.00	.00
23	.00	.00	.00	.00	70	87	8.1	3.0	831	.36	.00	.00
24	.00	.00	.00	.50	80	68	5.2	2.4	570	.27	.00	.00
25	.00	.00	.00	1.0	70	52	4.5	2.6	320	.15	.00	.00
26	.00	.00	.00	2.0	35	50	108	2.6	211	348	.00	.00
27	.00	.00	.00	3.0	15	74	302	7.6	157	168	.00	.00
28	.00	.00	.00	4.0	14	69	107	78	117	45	.00	.00
29	.00	.00	.00	5.0	13	51	62	32	86	17	.00	.00
30	.00	.00	.00	15	---	31	34	15	70	8.6	.00	.00
31	.00	---	.00	25	---	20	---	9.2	---	4.9	.00	---
TOTAL	.00	.00	.00	63.65	551.0	1275.0	2350.4	2764.7	47894.2	983.39	167.58	.00
MEAN	.00	.00	.00	2.05	19.0	41.1	78.3	89.2	1596	31.7	5.41	.00
MAX	.00	.00	.00	25	80	150	399	875	9030	348	94	.00
MIN	.00	.00	.00	.00	5.0	8.0	4.5	2.4	2.6	.15	.00	.00
AC-FT	.0	.00	.00	126	1090	2530	4660	5480	95000	1950	332	.00

CAL YR 1983 TOTAL 42372.61 MEAN 116 MAX 6170 MIN .00 AC-FT 84050
WTR YR 1984 TOTAL 56049.92 MEAN 153 MAX 9030 MIN .00 AC-FT 111200

06441500 BAD RIVER NEAR FORT PIERRE, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1946-53, 1972 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED SEDIMENT DISCHARGE: October 1971 to current year.
WATER TEMPERATURES: October 1972 to current year.

REVISED RECORDS.--WRD SD-81-1: 1979-80.

REMARKS.--Records poor. No flow Oct. 1 to Jan. 1, Jan. 13-23, Aug. 22 to Sept. 30. Flow affected by ice Jan. 1 to Mar. 21. Sediment-discharge records prior to Oct. 1, 1971, on file in the District office, Corps of Engineers, Omaha, NE.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 124,000 mg/L July 17, 1981; minimum daily mean, 0 mg/L on many days each year.
SEDIMENT LOADS: Maximum daily, 949,000 tons May 14, 1982; minimum daily, 0 ton on many days each year.

EXTREMES FOR CURRENT YEAR.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 42,600 mg/L Apr. 27; minimum daily mean, 0 mg/L on many days.
SEDIMENT LOADS: Maximum daily, 873,000 tons June 4; minimum daily, 0 ton on many days.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)
MAR									
23...	1500	73	9.5	100	81	91	97	100	--
JUN									
04...	1715	9160	--	--	77	83	86	100	--
05...	1230	4940	18.5	--	72	79	90	100	--
06...	1050	1030	18.0	--	80	84	92	100	--
07...	1530	404	20.5	--	83	85	96	99	100
10...	1100	7550	15.0	--	71	82	95	100	--
21...	1530	1220	22.5	--	71	80	86	97	100

06441500 BAD RIVER NEAR FORT PIERRE, SD--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	.00	0	.00	.00	0	.00	.00	0	.00
2	.00	0	.00	.00	0	.00	.00	0	.00
3	.00	0	.00	.00	0	.00	.00	0	.00
4	.00	0	.00	.00	0	.00	.00	0	.00
5	.00	0	.00	.00	0	.00	.00	0	.00
6	.00	0	.00	.00	0	.00	.00	0	.00
7	.00	0	.00	.00	0	.00	.00	0	.00
8	.00	0	.00	.00	0	.00	.00	0	.00
9	.00	0	.00	.00	0	.00	.00	0	.00
10	.00	0	.00	.00	0	.00	.00	0	.00
11	.00	0	.00	.00	0	.00	.00	0	.00
12	.00	0	.00	.00	0	.00	.00	0	.00
13	.00	0	.00	.00	0	.00	.00	0	.00
14	.00	0	.00	.00	0	.00	.00	0	.00
15	.00	0	.00	.00	0	.00	.00	0	.00
16	.00	0	.00	.00	0	.00	.00	0	.00
17	.00	0	.00	.00	0	.00	.00	0	.00
18	.00	0	.00	.00	0	.00	.00	0	.00
19	.00	0	.00	.00	0	.00	.00	0	.00
20	.00	0	.00	.00	0	.00	.00	0	.00
21	.00	0	.00	.00	0	.00	.00	0	.00
22	.00	0	.00	.00	0	.00	.00	0	.00
23	.00	0	.00	.00	0	.00	.00	0	.00
24	.00	0	.00	.00	0	.00	.00	0	.00
25	.00	0	.00	.00	0	.00	.00	0	.00
26	.00	0	.00	.00	0	.00	.00	0	.00
27	.00	0	.00	.00	0	.00	.00	0	.00
28	.00	0	.00	.00	0	.00	.00	0	.00
29	.00	0	.00	.00	0	.00	.00	0	.00
30	.00	0	.00	.00	0	.00	.00	0	.00
31	.00	0	.00	---	---	---	.00	0	.00
TOTAL	0.00	---	0.00	0.00	---	0.00	0.00	---	0.00
		JANUARY			FEBRUARY			MARCH	
1	.00	0	.00	23	2000	124	14	1000	38
2	.50	50	.07	15	1000	40	15	1000	40
3	.80	70	.15	10	450	12	13	800	28
4	1.3	90	.32	7.0	350	6.6	11	600	18
5	1.5	100	.41	5.0	250	3.4	10	500	13
6	1.4	90	.34	5.0	250	3.4	9.0	400	9.7
7	1.0	70	.19	5.5	450	6.7	8.0	300	6.5
8	.70	60	.11	12	800	26	9.0	300	7.3
9	.40	50	.05	11	600	18	10	258	7.0
10	.25	30	.02	10	442	12	10	300	8.1
11	.20	20	.01	9.5	400	10	15	300	12
12	.10	10	.00	9.5	400	10	25	2000	135
13	.00	0	.00	9.0	300	7.3	50	7800	1050
14	.00	0	.00	9.0	300	7.3	100	8600	2320
15	.00	0	.00	9.0	300	7.3	80	5000	1080
16	.00	0	.00	9.0	300	7.3	20	1100	59
17	.00	0	.00	9.0	300	7.3	9.0	400	9.7
18	.00	0	.00	8.5	250	5.7	10	400	11
19	.00	0	.00	8.0	300	6.5	20	4500	243
20	.00	0	.00	10	450	12	50	16200	2190
21	.00	0	.00	20	1350	73	150	27600	11200
22	.00	0	.00	40	4550	491	135	25000	9110
23	.00	0	.00	70	9300	1760	87	11000	2580
24	.50	50	.07	80	12400	2680	68	4000	734
25	1.0	100	.27	70	9000	1700	52	2500	351
26	2.0	150	.81	35	6000	567	50	2500	337
27	3.0	175	1.4	15	3000	121	74	2300	460
28	4.0	200	2.2	14	1000	38	69	2000	373
29	5.0	250	3.4	13	1000	35	51	1500	207
30	15	1000	40	---	---	---	31	1000	84
31	25	2200	148	---	---	---	20	500	27
TOTAL	63.65	---	137.82	551.0	---	7707.8	1275.0	---	32748.3

BEST COPY AVAILABLE

06441500 BAD RIVER NEAR FORT PIERRE, SD--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	9.7	350	9.2	25	500	34	3.6	246	2
2	5.9	294	4.7	38	1000	103	2.6	245	2
3	82	11300	2500	51	900	124	26	500	35
4	92	15600	3880	221	9640	5750	9030	35800	873000
5	50	1500	202	271	6950	5090	5850	20000	316000
6	23	400	25	875	32000	75600	1060	9700	27800
7	20	400	22	278	6400	4800	459	5200	6440
8	12	300	9.7	165	1300	579	318	3000	2580
9	33	800	71	127	1000	343	195	1300	684
10	28	500	38	110	800	238	5300	21300	305000
11	19	400	21	111	800	240	3660	14500	143000
12	82	5580	1240	113	900	275	5200	15500	218000
13	370	22900	22900	68	700	129	2010	7300	39600
14	399	11900	12800	43	500	58	1200	5200	16800
15	202	2100	1150	34	400	37	2630	15000	107000
16	106	900	258	25	300	20	1940	8900	46600
17	67	700	127	17	290	13	1760	13300	63200
18	45	500	61	12	286	9.3	1760	7800	37100
19	30	400	32	9.2	270	6.7	721	4300	8370
20	20	350	19	7.2	260	5.1	729	5400	10600
21	14	300	11	6.3	240	4.1	1270	18600	63800
22	10	260	7.0	5.6	220	3.3	408	2200	2420
23	8.1	254	5.6	3.0	210	1.7	831	11600	26000
24	5.2	250	3.5	2.4	200	1.3	570	3500	5390
25	4.5	100	1.2	2.6	250	1.8	320	840	726
26	108	7540	2200	2.6	250	1.8	211	800	456
27	302	42600	34700	7.6	400	8.2	157	760	322
28	107	6000	1730	78	1000	211	117	720	227
29	62	1500	251	32	500	43	86	675	157
30	34	800	73	15	400	16	70	635	120
31	---	---	---	9.2	300	7.5	---	---	---
TOTAL	2350.4	---	84351.9	2764.7	---	93753.8	47894.2	---	2321431
		JULY			AUGUST			SEPTEMBER	
1	67	590	107	3.0	200	1.6	.00	0	.00
2	63	550	94	1.5	100	.41	.00	0	.00
3	51	505	70	.84	50	.11	.00	0	.00
4	44	465	55	94	2180	553	.00	0	.00
5	37	420	42	42	450	51	.00	0	.00
6	30	380	31	12	120	3.9	.00	0	.00
7	25	340	23	4.2	100	1.1	.00	0	.00
8	20	300	16	1.2	50	.16	.00	0	.00
9	15	255	10	.43	30	.03	.00	0	.00
10	10	215	5.8	.40	20	.02	.00	0	.00
11	7.5	170	3.4	.30	20	.02	.00	0	.00
12	5.0	130	1.8	.25	15	.01	.00	0	.00
13	3.9	87	.92	.20	15	.00	.00	0	.00
14	2.8	80	.60	.15	15	.00	.00	0	.00
15	2.2	70	.42	.10	10	.00	.00	0	.00
16	2.0	80	.43	.09	10	.00	.00	0	.00
17	1.7	90	.41	.07	10	.00	.00	0	.00
18	1.4	90	.34	.05	10	.00	.00	0	.00
19	1.0	100	.27	4.6	100	1.2	.00	0	.00
20	.75	100	.20	1.2	60	.19	.00	0	.00
21	.50	110	.15	1.0	20	.05	.00	0	.00
22	.36	120	.12	.00	0	.00	.00	0	.00
23	.36	122	.12	.00	0	.00	.00	0	.00
24	.27	120	.09	.00	0	.00	.00	0	.00
25	.15	120	.05	.00	0	.00	.00	0	.00
26	348	3160	2970	.00	0	.00	.00	0	.00
27	168	1000	454	.00	0	.00	.00	0	.00
28	45	450	55	.00	0	.00	.00	0	.00
29	17	300	14	.00	0	.00	.00	0	.00
30	8.6	280	6.5	.00	0	.00	.00	0	.00
31	4.9	253	3.3	.00	0	.00	---	---	---
TOTAL	983.39	---	3965.92	167.58	---	612.80	0.00	---	0.00

06442000 MEDICINE KNOLL CREEK NEAR BLUNT, SD

LOCATION.--Lat 44°33'46", long 99°54'50", in NW¼ sec.31, T.113 N., R.75 W., Sully County, Hydrologic Unit 10140103, on left bank at downstream side of highway bridge, 4.8 mi northeast of Blunt and 5.5 mi upstream from South Fork Medicine Knoll Creek.

DRAINAGE AREA.--317 mi^2.

PERIOD OF RECORD.--March 1950 to current year. Prior to October 1959, published as Medicine Creek near Blunt.

REVISED RECORDS.--WRD SD-76-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,611.08 ft National Geodetic Vertical Datum of 1929. Prior to Oct. 31, 1950, nonrecording gage at same site and datum.

REMARKS.--Records poor. Only daily discharges above 25 ft^3/s are being published.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,830 ft^3/s Apr. 5, 1952 (gage height, 12.34 ft), from floodmarks; maximum gage height, 13.2 ft between Mar. 26-29, 1950, from floodmarks (backwater from ice); no flow for long periods in each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
June 10	1445	53	9.76	June 22	0315	*235	*11.24

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984 MEAN VALUES

Daily discharge, in cubic feet per second, above 25 ft^3/s are given herewith:

June 10	35	June 25	82
June 11	31	June 26	71
June 21	76	June 27	58
June 22	189	June 28	48
June 23	122	June 29	39
June 24	88	June 30	31

06442500 MEDICINE CREEK AT KENNEBEC, SD

LOCATION.--Lat 43°54'17", long 99°52'35", in NW¼NE¼ sec.18, T.105 N., R.75 W., Lyman County, Hydrologic Unit 10140104, on right bank 4 ft downstream from highway bridge, 0.5 mi west of Kennebec and 0.5 mi downstream from small right-bank tributary.

DRAINAGE AREA.--465 mi², approximately.

PERIOD OF RECORD.--July 1954 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,659.64 ft National Geodetic Vertical Datum of 1929. Prior to Dec. 28, 1954, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, Jan. 29 to Mar. 11, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--30 years, 16.2 ft³/s (11,740 acre-ft/yr); median of yearly mean discharges, 7.2 ft³/s (5,200 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,970 ft³/s Mar. 28, 1960 (gage height, 16.71 ft); no flow for many days each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in April 1952 reached a stage of 17.0 ft, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 15	1215	415	6.66	June 21	1530	346	6.17
June 17	0815	*1890	*11.93				

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.65	2.0	5.2	3.2	.57	1.6	2.5	.00
2	.00	.00	.00	.00	.50	1.9	4.5	2.7	.55	1.6	1.5	.00
3	.00	.00	.00	.00	.25	1.9	9.5	2.4	.50	2.4	1.4	.00
4	.00	.00	.00	.00	.10	1.8	11	2.3	.41	3.5	4.8	.00
5	.00	.00	.00	.00	.00	1.8	14	2.3	.27	2.3	10	.00
6	.00	.00	.00	.00	.00	1.8	17	2.5	.20	1.4	5.2	.00
7	.00	.00	.00	.00	.02	1.7	14	2.2	.15	.84	2.3	.00
8	.00	.00	.00	.00	.02	1.7	9.9	2.8	.07	.67	1.1	.00
9	.00	.00	.00	.00	.03	1.8	7.6	9.3	.12	.55	.47	.00
10	.00	.00	.00	.00	.02	1.9	5.6	5.3	.20	.62	.19	.00
11	.00	.00	.00	.00	.00	2.2	5.0	3.8	.64	.59	.00	.00
12	.00	.00	.00	.00	.00	2.6	8.3	2.9	1.1	.55	.00	.00
13	.00	.00	.00	.00	.00	2.9	36	2.4	.81	.40	.00	.00
14	.00	.00	.00	.00	.00	3.6	150	2.2	1.7	.20	.00	.00
15	.00	.00	.00	.00	.00	4.4	224	2.0	7.5	.10	.00	.00
16	.00	.00	.00	.00	.00	11	138	1.7	418	.05	.00	.00
17	.00	.00	.00	.00	.00	30	64	1.3	1460	.00	.00	.00
18	.00	.00	.00	.00	.00	26	36	.88	453	.00	.00	.00
19	.00	.00	.00	.00	.50	19	27	.72	153	.00	.00	.00
20	.00	.00	.00	.00	1.5	18	18	.53	86	.00	.00	.00
21	.00	.00	.00	.00	2.4	15	12	.43	223	.00	.00	.00
22	.00	.00	.00	.00	2.3	13	9.2	.21	106	.00	.00	.00
23	.00	.00	.00	.00	2.0	22	7.5	.15	57	.00	.00	.00
24	.00	.00	.00	.00	1.8	21	6.0	.08	31	.00	.00	.00
25	.00	.00	.00	.00	1.8	16	4.5	.05	17	.00	.00	.00
26	.00	.00	.00	.00	1.7	12	5.0	.00	11	.10	.00	.00
27	.00	.00	.00	.00	1.7	10	7.2	.40	7.7	53	.00	.00
28	.00	.00	.00	.00	1.7	9.0	5.5	1.4	5.2	28	.00	.00
29	.00	.00	.00	.00	1.8	7.9	4.5	2.8	3.2	12	.00	.00
30	.00	.00	.00	.10	---	6.5	3.9	1.7	2.1	5.8	.00	.00
31	.00	---	.00	.70	---	5.8	---	.84	---	3.3	.00	---
TOTAL	.00	.00	.00	.80	20.79	276.2	869.9	61.49	3047.99	119.57	29.46	.00
MEAN	.00	.00	.00	.03	.72	8.91	29.0	1.98	102	3.86	.95	.00
MAX	.00	.00	.00	.70	2.4	30	224	9.3	1460	53	10	.00
MIN	.00	.00	.00	.00	.00	1.7	3.9	.00	.07	.00	.00	.00
AC-FT	.0	.00	.00	1.6	41	548	1730	122	6050	237	58	.00

CAL YR 1983 TOTAL 10394.63 MEAN 28.5 MAX 1720 MIN .00 AC-FT 20620
WTR YR 1984 TOTAL 4426.20 MEAN 12.1 MAX 1460 MIN .00 AC-FT 8780

06442700 LAKE SHARPE NEAR FORT THOMPSON, SD

LOCATION.--Lat 44°02'18", long 99°26'45", in SE¼ sec.27, T.107 N., R.72 W., Lyman County, Hydrologic Unit 10140101, at left approach wall of powerhouse at Big Bend Dam on Missouri River, 2.5 mi south of Fort Thompson, and at mile 987.4.

DRAINAGE AREA.--249,300 mi², approximately.

PERIOD OF RECORD.--July 1963 to current year (monthend contents only).

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by earthfill dam; closure made July 1963; intentional storage began November 1963. Maximum capacity, 1,884,000 acre-ft below elevation, 1,423.0 ft (top of spillway gates). Normal maximum, 1,699,000 acre-ft below elevation 1,420.0 ft. Inactive storage, 1,424,000 acre-ft below elevation 1,415.0 ft. From capacity table put into use Sept. 1, 1984: Maximum capacity, 1,874,000 acre-ft. Normal maximum capacity, 1,697,000. Inactive storage, 1,424,000. Figures given herein represent elevations at powerhouse and total contents adjusted for wind effect.

The spillway consists of a concrete chute with flat crest at elevation 1,385.0 ft surmounted by 8 taintor gates, each 40 by 38 ft; design capacity, 390,000 ft³/s. Normal releases are through 8 power units (completed in July 1966), with a generating capacity of 58,500 kilowatts each. Maximum release through powerplant about 100,000 ft³/s. Water is used for flood control, navigation, power, and incidental uses.

COOPERATION.--Elevation and contents furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,829,000 acre-ft Apr. 22, 1971, affected by wind; minimum since initial filling, 1,448,000 acre-ft Sept. 17, 1967, affected by wind.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,777,000 acre-ft Oct. 2; minimum contents, 1,676,000 acre-ft June 5.

MONTHEND ELEVATION, IN FEET NGVD, AND CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

Date	Elevation	Contents	Change in contents
Sept. 30	1420.18	1703000	
Oct. 31	1420.88	1745000	+42000
Nov. 30	1420.38	1714000	-31000
Dec. 31	1421.12	1760000	+46000
CAL YR 1983			+52000
Jan. 31	1420.77	1740000	-20000
Feb. 29	1420.42	1723000	-17000
Mar. 31	1420.40	1728000	+5000
Apr. 30	1420.67	1736000	+8000
May 31	1420.46	1722000	-14000
June 30	1420.47	1725000	+3000
July 31	1420.58	1732000	+7000
Aug. 31	1419.87	1699000	-33000
Sept. 1	1419.87	*1689000	-10000
Sept. 30	1421.00	1757000	+68000
WTR YR 1984			+54000

* New capacity table put into use Sept. 1, 1984.

06442950 CROW CREEK NEAR GANN VALLEY, SD

LOCATION.--Lat 43°59'29", long 99°13'07", in NE¼NW¼ sec.15, T.106 N., R.70 W., Buffalo County, Hydrologic Unit 10140105, near center of span at downstream side of highway bridge, 6.4 mi upstream from Smith Creek, 6.9 mi downstream from Elm Creek, and 12.0 mi southwest of Gann Valley.

DRAINAGE AREA.--670 mi^2, approximately.

PERIOD OF RECORD.--October 1971 to Sept. 30, 1984 (discontinued).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,434.73 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--13 years, 19.0 ft^3/s (13,770 acre-ft/yr); median of yearly mean discharges, 15 ft^3/s (10,900 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,900 ft^3/s Mar. 22, 1978 (gage height, 14.60 ft); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 23	--	180	ice jam	Apr. 12	2330	394	5.72
Mar. 15	0200	406	5.79	June 10	2300	225	4.68
Mar. 23	0600	1020	8.95	June 24	0200	*1170	*9.58
Apr. 8	0800	366	5.55				

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	70	35	15	3.0	27	.90	.00
2	.00	.00	.00	.00	.00	65	20	13	2.5	23	1.0	.00
3	.00	.00	.00	.00	.00	50	61	12	2.0	19	5.0	.00
4	.00	.00	.00	.00	.00	40	80	11	1.9	16	30	.00
5	.00	.00	.00	.00	.00	35	50	11	7.0	14	14	.00
6	.00	.00	.00	.00	.00	30	45	11	20	11	12	.00
7	.00	.00	.00	.00	.00	25	58	11	7.1	8.1	6.4	.00
8	.00	.00	.00	.00	.00	20	218	9.3	35	6.1	1.8	.00
9	.00	.00	.00	.00	.00	17	60	9.3	137	4.5	1.0	.00
10	.00	.00	.00	.00	.00	16	38	9.6	154	3.0	.60	.00
11	.00	.00	.00	.00	.00	13	40	8.7	135	2.0	.30	.00
12	.00	.00	.00	.00	.00	11	192	8.1	91	1.0	.20	.00
13	.00	.00	.00	.00	.00	10	279	7.5	58	.70	.10	.00
14	.00	.00	.00	.00	.00	112	210	7.1	38	.50	.05	.00
15	.00	.00	.00	.00	1.0	342	276	6.1	31	.40	.02	.00
16	.00	.00	.00	.00	50	210	193	4.7	31	.30	.00	.00
17	.00	.00	.00	.00	130	155	96	4.2	26	.19	.00	.00
18	.00	.00	.00	.00	90	150	61	3.9	19	.10	.00	.00
19	.00	.00	.00	.00	80	238	50	3.5	16	.05	.00	.00
20	.00	.00	.00	.00	90	375	45	2.8	14	.00	.00	.00
21	.00	.00	.00	.00	110	617	40	2.5	26	.00	.00	.00
22	.00	.00	.00	.00	150	743	35	2.2	55	.00	.00	.00
23	.00	.00	.00	.00	170	908	30	2.1	657	.00	.00	.00
24	.00	.00	.00	.00	125	520	25	2.0	836	.00	.00	.00
25	.00	.00	.00	.00	115	295	19	1.5	205	.50	.00	.00
26	.00	.00	.00	.00	110	180	19	1.4	85	2.8	.00	.00
27	.00	.00	.00	.00	100	147	18	3.7	55	2.0	.00	.00
28	.00	.00	.00	.00	90	110	16	8.7	43	1.0	.00	.00
29	.00	.00	.00	.00	85	90	15	11	35	.90	.00	.00
30	.00	.00	.00	.00	---	60	17	8.7	31	.80	.00	.00
31	.00	---	.00	.00	---	50	---	4.2	---	.80	.00	---
TOTAL	.00	.00	.00	.00	1496.00	5704	2341	216.8	2856.5	145.74	73.37	.00
MEAN	.00	.00	.00	.00	51.6	184	78.0	6.99	95.2	4.70	2.37	.00
MAX	.00	.00	.00	.00	170	908	279	15	836	27	30	.00
MIN	.00	.00	.00	.00	.00	10	15	1.4	1.9	.00	.00	.00
AC-FT	.0	.00	.00	.00	2970	11310	4640	430	5670	289	146	.00

CAL YR 1983	TOTAL	4270.39	MEAN	11.7	MAX	549	MIN	.00	AC-FT	8470
WTR YR 1984	TOTAL	12833.41	MEAN	35.1	MAX	908	MIN	.00	AC-FT	25460

06446000 WHITE RIVER NEAR OGLALA, SD

LOCATION.--Lat 43°15'17", long 102°49'29", in SW¼NE¼ sec.24, T.38 N., R.47 W., Shannon County, Hydrologic Unit 10140201, on right bank at downstream side of bridge, 3.0 mi downstream from Blacktail Creek and 7.0 mi northwest of Oglala.

DRAINAGE AREA.--2,200 mi^2, approximately.

PERIOD OF RECORD.--May 1943 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,853.54 ft National Geodetic Vertical Datum of 1929. Prior to May 6, 1947, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, Dec. 10 to Mar. 12, which are poor. Some diversions for irrigation above station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--41 years, 53.0 ft^3/s (38,400 acre-ft/yr); median of yearly mean discharges, 46 ft^3/s (33,300 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,200 ft^3/s June 21, 1947 (gage height, 23.50 ft), from rating curve extended above 2,800 ft^3/s on basis of velocity-area studies; maximum gage height, 23.61 ft June 16, 1967; no flow at times in 1952, 1954, 1957, 1961, 1964, 1965, 1970-76, 1981, 1982, 1984.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 515 ft^3/s at 2230 hours, May 3 (gage height, 11.44 ft), no peak above base of 800 ft^3/s; no flow Sept. 4-7, 11-20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.0	16	18	16	50	80	67	403	59	23	10	1.4
2	3.8	16	18	15	60	84	66	397	51	21	18	.67
3	3.2	17	18	17	70	86	66	491	45	21	8.9	.25
4	4.4	17	18	18	70	88	70	485	45	19	6.1	.00
5	5.2	17	17	20	66	87	81	395	50	18	7.3	.00
6	5.2	18	17	23	73	86	113	423	63	19	23	.00
7	2.2	18	19	28	75	76	138	379	53	16	23	.00
8	1.9	20	19	28	80	66	147	323	49	15	16	.01
9	5.3	20	19	25	80	66	136	235	52	21	11	.05
10	13	20	19	25	80	66	114	188	76	21	7.7	.03
11	13	21	22	24	80	66	89	167	83	243	6.1	.00
12	13	21	20	23	80	66	73	145	104	136	6.7	.00
13	13	21	20	22	85	74	70	124	91	58	5.9	.00
14	13	19	19	21	80	90	70	113	84	76	3.2	.00
15	14	19	19	20	80	91	65	104	72	57	1.8	.00
16	15	21	18	20	80	76	59	95	57	43	2.0	.00
17	16	22	18	19	75	81	57	88	47	36	3.7	.00
18	16	25	17	17	80	78	54	83	41	31	2.9	.00
19	14	20	17	18	80	85	54	75	39	27	1.3	.00
20	13	18	16	17	85	81	51	71	34	22	.92	.00
21	14	17	15	18	90	76	48	70	32	20	.66	.15
22	13	18	14	19	85	73	45	67	30	16	1.4	4.4
23	14	22	14	20	85	88	37	57	36	13	5.8	2.6
24	14	24	14	22	80	84	35	47	27	13	7.8	2.1
25	13	18	15	24	80	77	37	44	25	11	5.9	4.0
26	12	21	15	26	80	70	40	46	22	9.3	4.1	4.1
27	13	21	16	28	80	71	45	54	21	9.5	2.3	3.0
28	14	19	16	30	75	73	200	64	26	9.9	.92	4.0
29	13	18	15	32	80	71	413	59	24	10	.43	5.4
30	13	17	15	34	---	72	407	55	22	11	2.7	6.3
31	14	---	16	40	---	71	---	63	---	9.9	2.8	---
TOTAL	335.2	581	533	709	2244	2399	2947	5410	1460	1055.6	200.33	38.46
MEAN	10.8	19.4	17.2	22.9	77.4	77.4	98.2	175	48.7	34.1	6.46	1.28
MAX	16	25	22	40	90	91	413	491	104	243	23	6.3
MIN	1.9	16	14	15	50	66	35	44	21	9.3	.43	.00
AC-FT	66	1150	1060	1410	4450	4760	5850	10730	2900	2090	397	76

CAL YR 1983 TOTAL 24785.0 MEAN 67.9 MAX 905 MIN 1.9 AC-FT 49160
WTR YR 1984 TOTAL 17912.59 MEAN 48.9 MAX 491 MIN .00 AC-FT 35530

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06447000 WHITE RIVER NEAR KADOKA, SD

LOCATION.--Lat 43°45'09", long 101°31'28", in SE¼SE¼ sec.30, T.3 S., R.22 E., Black Hills meridian, Jackson County, Hydrologic Unit 10140202, near center of span on downstream side of bridge on State Highway 73, 5.0 mi upstream from Pass Creek, 5.5 mi downstream from Cottonwood Creek, and 5.8 mi south of Kadoka.

DRAINAGE AREA.--5,000 mi², approximately.

PERIOD OF RECORD.--July 1942 to current year.

REVISED RECORDS.--WSP 1279: 1944(M), 1948.

GAGE.--Water-stage recorder. Datum of gage is 2,122.18 ft National Geodetic Vertical Datum of 1929. Prior to June 14, 1949, nonrecording gage, and June 14, 1949, to Mar. 8, 1955, water-stage recorder at site 0.3 mi downstream at same datum. Mar. 9, 1955, to May 17, 1957, nonrecording gage at present site and datum.

REMARKS.--Records fair except those for winter period, Nov. 24 to Mar. 16, which are poor. Some diversions above station for irrigation. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--42 years, 276 ft³/s (200,000 acre-ft/yr); median of yearly mean discharges, 260 ft³/s (188,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,700 ft³/s June 7, 1951 (gage height, 13.83 ft), site then in use, from rating curve extended above 16,000 ft³/s; maximum gage height, 16.18 ft May 20, 1982; no flow at times in many years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 4, 1942, reached a stage of 16.24 ft, from floodmarks (discharge, about 32,000 ft³/s, from rating curve extended above 16,000 ft³/s). Floods of Mar. 8, 1905, and in spring of 1927 were 1 or 2 ft higher than flood of June 4, 1942, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,600 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
June 12	0600	3760	8.52	Aug. 21	0100	*4470	*9.13

No flow Sept. 6-11, 14-22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	34	27	31	250	280	120	1900	200	70	24	12
2	48	40	26	33	240	270	159	1410	200	193	13	7.8
3	56	37	27	33	220	250	236	1310	160	263	10	3.6
4	124	29	28	35	190	240	1030	950	120	172	21	1.6
5	101	41	29	38	170	220	1130	1000	166	159	22	.84
6	73	44	29	40	170	200	554	1390	454	144	24	.00
7	62	47	28	45	180	180	416	1180	518	94	15	.00
8	53	60	29	43	180	180	312	813	630	73	15	.00
9	48	462	30	40	200	190	251	674	298	163	13	.00
10	44	569	30	40	210	200	231	548	160	259	10	.00
11	38	317	29	35	210	210	211	500	1400	125	2.2	.00
12	37	186	28	35	200	220	196	405	3040	98	2.2	.21
13	35	136	30	35	190	240	196	355	1140	182	2.2	.21
14	38	256	31	33	200	260	159	302	565	101	.98	.00
15	43	182	30	30	200	300	141	284	500	128	4.9	.00
16	42	135	29	30	250	290	127	389	1430	159	1.1	.00
17	41	92	29	30	350	540	117	204	1530	704	44	.00
18	43	84	28	29	450	300	117	166	618	302	66	.00
19	59	80	28	29	600	172	101	231	344	112	50	.00
20	103	73	27	28	650	251	105	160	330	71	808	.00
21	62	64	26	27	700	159	98	130	1110	56	2480	.00
22	53	44	24	30	680	150	95	141	359	44	494	.00
23	49	25	22	50	650	96	90	147	169	38	204	1.1
24	46	25	21	80	550	144	90	130	122	31	189	6.8
25	37	26	21	100	450	144	86	130	105	60	57	10
26	28	27	22	120	400	138	484	163	94	76	37	15
27	31	27	22	110	350	144	2290	160	84	48	37	5.7
28	29	28	23	100	330	159	1150	154	84	53	37	2.6
29	29	28	24	120	300	169	1260	576	78	38	24	6.6
30	30	28	26	150	---	144	2110	349	75	24	18	5.7
31	31	---	28	200	---	130	---	207	---	42	12	---
TOTAL	1555	3226	831	1779	9720	6570	13662	16458	16083	4082	4737.58	79.76
MEAN	50.2	108	26.8	57.4	335	212	455	531	536	132	153	2.66
MAX	124	569	31	200	700	540	2290	1900	3040	704	2480	15
MIN	28	25	21	27	170	96	86	130	75	24	.98	.00
AC-FT	308	6400	1650	3530	19280	13030	27100	32640	31900	8100	9400	158

CAL YR 1983 TOTAL 109133 MEAN 299 MAX 9060 MIN 21 AC-FT 216500
WTR YR 1984 TOTAL 78783.34 MEAN 215 MAX 3040 MIN .00 AC-FT 156300

06447500 LITTLE WHITE RIVER NEAR MARTIN, SD

LOCATION.--Lat 43°10'00", long 101°37'47", in NW¼ sec.19, T.37 N., R.36 W., Bennett County, Hydrologic Unit 10140203, on right bank 70 ft downstream from highway culvert and 5.4 mi east of Martin.

DRAINAGE AREA.--310 mi², approximately, of which about 230 mi² probably contributes directly to surface runoff.

PERIOD OF RECORD.--February 1938 to September 1940, July 1962 to current year. Prior to October 1965, published as South Fork White River near Martin.

GAGE.--Water-stage recorder. Altitude of gage is 3,045 ft, by barometer. Prior to Aug. 14, 1938, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, Nov. 26 to Feb. 29, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--24 years, 19.3 ft³/s (13,980 acre-ft/yr); median of yearly mean discharges, 18 ft³/s (13,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,190 ft³/s July 19, 1965 (gage height, 12.90 ft), from rating curve extended above 340 ft³/s on basis of computation of peak flow through culvert and flow-over-road measurement of peak flow; maximum gage height, 13.21 ft Mar. 11, 1966 (backwater from ice); minimum daily discharge, 0.6 ft³/s Aug. 14, 16, 18, 1940; no flow for part of each day Oct. 19, 20, 22, 1962 (regulation caused by construction work above station).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 5, 1932, reached a stage of 13.3 ft, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 67 ft³/s at 0900 hours, Apr. 8 (gage height, 3.62 ft), from graph based on gage readings, no peak above base of 100 ft³/s; maximum gage height, 4.33 ft Feb. 28 (backwater from ice); minimum daily discharge, 4.6 ft³/s Sept. 2-4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	14	13	17	20	35	30	31	14	8.5	12	4.7
2	17	15	14	18	21	40	30	30	13	8.5	12	4.6
3	17	15	15	18	20	45	30	30	13	8.7	13	4.6
4	17	15	16	19	19	43	26	31	12	8.9	15	4.6
5	15	15	15	19	18	44	30	31	12	8.8	15	4.7
6	15	16	14	20	18	47	51	31	13	8.8	24	4.9
7	14	16	15	21	19	44	59	31	12	8.8	17	5.0
8	14	17	15	21	20	44	64	33	12	9.0	14	5.0
9	14	17	15	20	20	25	55	33	13	8.8	13	5.0
10	14	19	16	19	22	37	47	31	12	9.3	12	5.2
11	14	19	15	19	25	31	41	28	12	9.3	11	5.3
12	14	19	15	18	25	35	37	26	13	9.6	11	5.6
13	15	20	16	18	24	37	34	25	13	9.7	9.8	5.8
14	14	22	15	18	23	46	31	23	13	9.4	9.4	6.0
15	14	21	14	18	25	43	29	22	15	9.4	8.7	6.4
16	14	20	14	18	41	41	28	20	16	9.8	8.6	6.8
17	14	19	13	18	40	38	26	19	14	13	8.8	6.8
18	14	18	13	18	35	33	25	17	13	13	8.8	6.9
19	14	18	13	17	33	34	24	16	13	12	8.3	7.0
20	14	18	13	15	32	36	23	15	12	11	8.3	7.0
21	14	18	12	15	35	34	22	15	11	10	8.5	6.9
22	14	17	11	16	40	33	21	14	11	10	8.6	6.9
23	14	18	10	17	40	31	22	14	10	9.9	8.4	7.1
24	14	18	11	18	35	30	21	13	9.8	9.9	7.9	7.4
25	13	17	11	18	32	29	21	14	9.6	11	7.6	7.7
26	13	16	12	19	31	29	23	14	9.5	11	7.2	8.1
27	13	15	13	18	30	33	26	14	9.3	12	6.8	8.4
28	13	15	15	18	32	34	29	16	8.9	13	6.4	8.8
29	14	14	15	18	33	33	30	17	8.7	13	6.1	9.1
30	14	14	15	19	---	33	30	18	8.4	12	5.6	9.4
31	14	---	16	19	---	32	---	16	---	12	4.9	---
TOTAL	445	515	430	564	808	1129	965	688	356.2	318.1	317.7	191.7
MEAN	14.4	17.2	13.9	18.2	27.9	36.4	32.2	22.2	11.9	10.3	10.2	6.39
MAX	17	22	16	21	41	47	64	33	16	13	24	9.4
MIN	13	14	10	15	18	25	21	13	8.4	8.5	4.9	4.6
AC-FT	88	1020	853	1120	1600	2240	1910	1360	707	631	630	380

CAL YR 1983	TOTAL 10820.4	MEAN	29.6	MAX	916	MIN	9.2	AC-FT	21460
WTR YR 1984	TOTAL 6727.7	MEAN	18.4	MAX	64	MIN	4.6	AC-FT	13340

06449000 LAKE CREEK BELOW REFUGE, NEAR TUTHILL, SD

LOCATION.--Lat 43°08'46", long 101°30'38", in SW¼ sec.30, T.37 N., R.35 W., Bennett County, Hydrologic Unit 10140203, on left bank 400 ft downstream from east boundary of LaCreek game refuge, 1.2 mi southwest of Tuthill and 5.5 mi upstream from mouth.

DRAINAGE AREA.--120 mi², approximately, of which about 60 mi² probably contributes directly to surface runoff.

PERIOD OF RECORD.--February 1938 to September 1940, July 1962 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,055 ft (by barometer). Prior to Aug. 4, 1938, nonrecording gage at same site and datum.

REMARKS.--Records poor. Flow regulated by series of dams above gage. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--24 years, 15.9 ft³/s (11,520 acre-ft/yr); median of yearly mean discharges, 17 ft³/s (12,300 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 178 ft³/s June 18, 1967 (gage height, 5.17 ft); maximum gage height, 5.67 ft Mar. 28, 1975 (backwater from ice); no flow for many days in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 98 ft³/s at 1200 hours, Apr. 12 (gage height, 4.21 ft); minimum daily discharge, 0.16 ft³/s Sept. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	11	40	27	16	31	40	7.6	14	2.9	.89	.50
2	14	13	38	27	15	28	40	10	13	3.3	.82	.40
3	14	15	35	22	16	30	46	12	13	4.6	.82	.30
4	14	20	35	16	16	33	48	17	11	5.7	.79	.21
5	12	33	35	16	16	35	47	18	8.5	4.6	.82	.18
6	11	34	34	16	16	37	49	23	9.6	3.4	.94	2.1
7	11	32	34	16	13	39	47	25	8.1	3.3	5.3	.30
8	10	31	33	16	10	36	47	25	8.2	5.9	1.0	.27
9	12	33	33	16	9.7	38	47	27	11	5.7	1.4	.24
10	11	32	32	16	9.6	39	52	28	7.4	6.8	1.8	.20
11	12	30	32	16	9.0	40	68	32	7.0	6.9	1.3	.16
12	12	33	32	16	8.9	40	87	34	7.6	5.2	1.3	.40
13	9.9	33	31	16	8.8	39	63	33	6.4	4.2	1.2	.66
14	9.0	29	31	17	8.6	41	59	31	9.5	3.8	1.4	.50
15	13	30	31	17	8.5	41	58	32	11	3.6	.94	.71
16	11	30	30	17	8.6	40	56	39	13	3.8	.71	1.7
17	11	30	30	17	8.2	39	49	36	14	2.4	.68	1.3
18	9.9	29	30	17	7.9	38	43	35	12	1.7	.65	.70
19	14	35	30	17	7.5	40	39	36	10	1.4	.62	.82
20	14	41	31	17	7.8	40	33	36	8.1	1.2	.60	1.1
21	14	62	30	16	9.3	39	33	34	8.0	1.5	.50	1.0
22	13	62	30	16	13	40	35	35	7.8	.99	.48	.90
23	14	60	30	16	16	43	35	31	6.5	.67	.45	.90
24	13	55	29	16	21	43	26	25	4.7	5.1	1.0	.85
25	13	52	28	16	25	42	17	26	3.8	8.3	.82	.85
26	11	54	29	16	29	47	22	24	3.8	3.4	.60	.85
27	11	55	28	16	33	47	36	28	3.1	2.5	.42	.84
28	10	52	28	16	37	45	12	28	2.7	1.7	.66	.84
29	11	47	27	16	38	43	6.4	25	1.7	1.1	.50	.84
30	9.8	43	27	16	---	41	7.7	21	1.9	.82	.40	.83
31	9.8	---	27	16	---	41	---	21	---	1.2	.71	---
TOTAL	368.4	1116	970	531	442.4	1215	1248.1	834.6	246.4	107.68	30.52	21.45
MEAN	11.9	37.2	31.3	17.1	15.3	39.2	41.6	26.9	8.21	3.47	.98	.71
MAX	14	62	40	27	38	47	87	39	14	8.3	5.3	2.1
MIN	9.0	11	27	16	7.5	28	6.4	7.6	1.7	.67	.40	.16
AC-FT	73	2210	1920	1050	878	2410	2480	1660	489	214	61	43

CAL YR 1983	TOTAL	8518.36	MEAN	23.3	MAX	103	MIN	.00	AC-FT	16900
WTR YR 1984	TOTAL	7131.55	MEAN	19.5	MAX	87	MIN	.16	AC-FT	14150

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06449100 LITTLE WHITE RIVER NEAR VETAL, SD

LOCATION.--Lat 43°06'03", long 101°13'49", in NE¼NW¼ sec.17, T.36 N., R.33 W., Bennett County, Hydrologic Unit 10140203, on left bank 120 ft downstream from highway bridge, 0.3 mi downstream from small right-bank tributary, 10.8 mi southeast of Vetal, and 15.3 mi upstream from Spring Creek.

DRAINAGE AREA.--590 mi², approximately, of which about 415 mi² probably contributes directly to surface runoff.

PERIOD OF RECORD.--August 1959 to current year. Prior to October 1965, published as South Fork White River near Vetal.

GAGE.--Water-stage recorder. Datum of gage is 2,780.69 ft National Geodetic Vertical Datum of 1929. Prior to Nov. 14, 1959, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter periods, Nov. 22 to Feb. 14 and Mar. 7-9, 16, 17, which are poor. Some small diversions for irrigation and some storage in several small lakes above station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--25 years, 53.3 ft³/s (38,620 acre-ft/yr); median of yearly mean discharges, 54 ft³/s (39,100 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,330 ft³/s Mar. 13, 1966 (gage height, 7.75 ft); minimum daily, 9.0 ft³/s Dec. 24, 25, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 176 ft³/s at 1415 hours, June 17 (gage height, 4.57 ft), no other peak above base of 150 ft³/s; maximum gage height, 5.09 ft Mar. 17 (backwater from ice); minimum daily discharge, 13 ft³/s Aug. 31, Sept. 1.

Rating table (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-10, Feb. 15; stage-discharge relation
affected by ice Nov. 22 to Feb. 14, Mar. 7-9, 16, 17)

3.3	12
3.5	24
3.7	42
4.0	77
4.5	153

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	36	50	60	75	112	110	57	61	33	24	13
2	44	37	55	60	70	106	111	57	57	34	24	15
3	45	38	60	60	70	102	110	61	55	41	23	16
4	41	38	65	62	65	102	117	63	55	37	23	16
5	42	40	60	62	60	103	133	69	50	35	21	15
6	40	51	55	62	60	106	139	75	50	32	21	15
7	41	57	60	65	62	106	138	79	50	30	22	15
8	40	58	60	60	67	100	134	81	45	32	21	16
9	38	58	60	55	66	105	129	81	45	39	25	17
10	39	59		55	65	110	139	84	43	38	23	17
11	39	58	60	50	65	112	143	93	41	36	23	19
12	39	59	62	45	70	107	136	95	37	37	22	19
13	41	62	65	45	73	110	139	97	36	34	21	18
14	40	63	60	45	70	122	143	92	36	33	20	19
15	39	60	60	45	64	120	126	89	41	33	19	19
16	40	61	55	40	62	120	125	87	80	33	20	19
17	40	63	50	40	64	120	124	89	115	32	21	19
18	40	65	50	37	81	121	121	91	121	32	19	19
19	41	62	48	35	89	122	110	86	88	31	18	19
20	42	68	47	35	78	130	101	83	68	30	17	19
21	43	72	45	40	79	126	91	81	59	30	16	18
22	42	70	45	50	90	124	85	77	54	30	16	19
23	42	65	40	60	97	120	85	74	49	29	16	19
24	43	65	40	62	90	123	85	70	44	28	15	19
25	42	70	45	62	93	121	84	69	41	38	15	20
26	42	70	45	65	97	125	79	67	37	48	15	20
27	38	65	50	60	99	123	69	74	33	34	14	21
28	38	60	50	60	103	120	78	68	32	27	14	23
29	37	60	55	60	107	120	68	68	30	25	14	23
30	37	55	55	65	---	115	57	67	28	23	14	23
31	37	---	55	70	---	113	---	63	---	26	13	---
TOTAL	1252	1745	1669	1672	2231	3566	3309	2387	1581	1020	589	549
MEAN	40.4	58.2	53.8	53.9	76.9	115	110	77.0	52.7	32.9	19.0	18.3
MAX	45	72	65	70	107	130	143	97	121	48	25	23
MIN	37	36	40	35	60	100	57	57	28	23	13	13
AC-FT	248	3460	3310	3320	4430	7070	6560	4730	3140	2020	1170	1090

CAL YR 1983 TOTAL 25044 MEAN 68.6 MAX 662 MIN 15 AC-FT 49670
WTR YR 1984 TOTAL 21570 MEAN 58.9 MAX 143 MIN 13 AC-FT 42780

06449300 LITTLE WHITE RIVER ABOVE ROSEBUD, SD

LOCATION.--Lat 43°15'47", long 100°55'02", in NW¼SE¼ sec.18, T.38 N., R.30 W., Todd County, Hydrologic Unit 10140203, on right bank at downstream side of Lampert bridge, on BIA highway in Crazy Horse Canyon, at Ghost Hawk Park, 3.1 mi upstream from Rosebud Creek, and 4.6 mi northwest of Rosebud.

DRAINAGE AREA.--890 mi^2, approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1981 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,415 ft, from topographic map.

REMARKS.--Records good except those for winter period, Nov. 26 to Feb. 15, which are poor. Some small diversions for irrigation and some storage in several small lakes above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 900 ft^3/s Aug. 4, 1983 (gage height, 3.51 ft); minimum daily, 30 ft^3/s Sept. 21, 1984.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 315 ft^3/s at 1245 hours, Apr. 7 (gage height, 1.80 ft), no other peak above base of 300 ft^3/s; maximum gage height observed, 3.25 ft Feb. 9 (backwater from ice); minimum daily discharge, 30 ft^3/s Sept. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	90	63	85	100	105	183	172	69	136	53	91	39
2	90	66	85	100	115	191	187	73	108	66	66	45
3	91	74	90	100	110	174	234	71	107	117	73	46
4	101	118	95	105	110	166	211	83	104	102	71	43
5	92	136	100	105	105	165	254	92	100	82	63	45
6	86	105	100	105	105	174	294	118	126	65	55	43
7	84	114	95	110	110	168	295	101	110	57	53	39
8	85	109	95	110	115	209	278	102	91	70	57	45
9	70	114	95	105	120	197	254	103	90	98	50	44
10	84	114	100	100	125	191	232	116	86	96	48	57
11	92	100	95	90	130	159	257	128	93	77	51	53
12	72	122	95	85	140	184	240	138	99	74	49	47
13	54	131	100	80	140	193	242	180	100	71	48	49
14	50	127	100	80	150	182	263	140	95	64	44	44
15	59	118	95	80	140	188	228	134	99	66	46	44
16	53	118	100	75	127	202	201	148	183	64	56	44
17	61	118	85	75	151	240	188	184	167	53	86	43
18	79	114	84	72	176	199	177	212	164	50	71	45
19	67	122	84	70	198	220	176	175	147	55	61	48
20	72	127	84	75	210	236	160	159	202	50	52	43
21	69	136	83	75	196	234	131	168	173	53	52	30
22	79	120	80	80	166	229	122	110	171	48	56	45
23	80	123	80	95	169	217	114	102	135	43	45	48
24	75	123	85	100	173	211	116	152	108	36	47	45
25	74	127	90	100	167	208	134	107	91	63	46	43
26	77	110	90	105	161	221	144	80	95	96	48	50
27	88	100	90	105	163	230	114	128	75	89	47	48
28	82	95	95	100	164	216	86	94	68	59	43	47
29	65	95	95	100	174	204	109	92	57	43	43	48
30	66	90	95	100	---	190	87	118	49	45	36	45
31	70	---	100	100	---	180	---	158	---	94	36	---
TOTAL	2357	3329	2845	2882	4215	6161	5700	3835	3429	2099	1690	1355
MEAN	76.0	111	91.8	93.0	145	199	190	124	114	67.7	54.5	45.2
MAX	101	136	100	110	210	240	295	212	202	117	91	57
MIN	50	63	80	70	105	159	86	69	49	36	36	30
AC-FT	468	6600	5640	5720	8360	12220	11310	7610	6800	4160	3350	2690

CAL YR 1983	TOTAL	45464	MEAN	125	MAX	650	MIN	48	AC-FT 90180
WTR YR 1984	TOTAL	39897	MEAN	109	MAX	295	MIN	30	AC-FT 79140

06449300 LITTLE WHITE RIVER ABOVE ROSEBUD, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Oct. 1, 1981, to current year.

REMARKS.--Monthly samples of common inorganic constituents collected.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	ALKA-LINITY LAB (MG/L AS CACO3)
OCT										
05...	1020	91	346	7.9	14.5	12.0	24	9.8	130	169
NOV										
25...	0850	127	375	7.8	-5.0	.0	30	11.6	370	195
DEC										
20...	1435	84	360	7.7	-18.0	.0	6.1	15.4	K23	188
JAN										
18...	1050	72	353	8.0	-15.0	.5	8.1	13.4	K23	185
FEB										
16...	1100	127	274	8.4	10.5	3.0	27	13.8	K69	157
MAR										
14...	1030	184	358	8.3	12.5	8.0	26	11.3	--	165
APR										
17...	1025	206	340	7.9	12.0	11.0	55	10.8	K28	170
MAY										
16...	0920	156	345	8.0	20.5	19.0	11	8.6	K69	134
JUN										
12...	0735	101	334	8.1	16.0	18.0	22	8.1	300	156
JUL										
12...	1200	79	310	8.0	28.5	25.0	33	7.5	150	144
AUG										
07...	0725	54	291	7.8	22.0	23.0	17	7.3	250	142
SEP										
05...	0840	48	277	8.0	13.0	14.5	6.8	9.2	--	138

DATE	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	BARIUM, DIS-SOLVED (UG/L AS BA)	LITHIUM DIS-SOLVED (UG/L AS LI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	ZINC, DIS-SOLVED (UG/L AS ZN)
OCT										
05...	<.020	.60	.240	.74	90	120	32	1	220	10
NOV										
25...	.070	.80	.350	1.1	150	64	36	<1	250	8
DEC										
20...	<.010	.60	.170	.52	50	140	26	1	240	10
JAN										
18...	.020	<.10	.250	.77	70	<2	14	<1	<0	<3
FEB										
16...	.020	.60	.300	.92	100	42	17	<1	200	7
MAR										
14...	.020	.40	.240	.74	70	110	19	<1	230	93
APR										
17...	.020	.30	.300	.92	180	120	21	<1	220	8
MAY										
16...	.030	.40	.180	--	40	110	25	<1	230	11
JUN										
12...	<.010	.50	.270	--	90	42	16	<1	220	4
JUL										
12...	.030	.30	.240	--	60	31	17	<1	190	9
AUG										
07...	.010	.40	.190	--	50	90	19	<1	210	<3
SEP										
05...	.010	.40	.220	--	70	31	16	<1	190	<3

< Less than.
K Non-ideal colony count.

06449400 ROSEBUD CREEK AT ROSEBUD, SD

LOCATION.--Lat 43°14'14", long 100°51'26", in SW¼SW¼NE¼ sec.27, T.38 N., R.30 W., Todd County, Hydrologic Unit 10140203, on left bank 40 ft upstream from bridge on Spotted Tail Lane in town of Rosebud, 0.4 mi downstream from small right bank tributary, and 1.0 mi downstream from Spotted Tail Dam.

DRAINAGE AREA.--50.8 mi², approximately.

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,531.91 ft National Geodetic Vertical Datum of 1929. October 1963 to September 1970, low-flow partial-record station 0.26 mi² upstream at different datum.

REMARKS.--Records fair except those for winter period, Nov. 19 to Jan. 25, which are poor. Flow regulated by Spotted Tail Dam and Indian Scout Lake, combined capacity, about 50 acre-ft, and some small diversions for irrigation of Spotted Tail Golf Course above station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--10 years, 7.32 ft³/s (5,300 acre-ft/yr); median of yearly mean discharges, 7.5 ft³/s (5,400 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 643 ft³/s July 27, 1976 (gage height, 10.34 ft); no flow Apr. 21, 1982.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 24 ft³/s at 2400 hours, July 10 (gage height, 5.23 ft); maximum gage height, 6.15 ft Oct. 10 (backwater from beaver dam); minimum daily discharge, 4.5 ft³/s Jan. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.5	7.0	6.0	7.4	6.7	8.2	10	7.3	7.5	6.3	8.4	5.3
2	6.5	7.2	6.5	8.0	6.5	7.8	12	7.2	7.5	6.8	7.0	5.6
3	6.7	7.7	7.0	8.2	6.4	7.6	12	7.2	7.2	7.8	7.5	5.6
4	6.7	7.5	7.5	8.4	6.3	7.6	12	6.7	6.9	7.3	6.9	5.1
5	6.7	7.7	8.0	8.6	5.5	7.7	11	8.0	6.8	6.4	6.4	5.3
6	6.5	8.1	8.0	8.8	6.5	7.9	13	9.8	8.1	6.0	6.0	5.0
7	6.7	8.1	7.5	9.0	7.5	7.6	12	8.5	7.2	6.1	7.2	5.2
8	7.0	8.8	7.5	8.8	7.0	7.6	10	7.4	6.9	7.6	7.0	5.5
9	6.0	9.9	8.0	8.4	7.5	7.6	8.2	7.0	8.7	10	6.4	5.2
10	6.5	9.4	8.0	8.0	8.0	9.2	8.3	6.7	8.3	9.4	6.5	6.2
11	6.5	9.1	7.5	8.0	9.0	9.9	9.6	7.4	7.6	14	6.3	6.3
12	6.5	9.4	8.0	7.5	8.5	9.7	8.0	7.2	7.4	8.3	5.9	6.2
13	7.0	9.9	8.0	7.0	7.5	10	12	6.6	6.9	7.2	5.8	5.5
14	6.7	9.7	7.5	6.8	8.0	10	12	6.5	6.8	7.2	5.4	6.3
15	7.0	9.0	7.5	6.5	7.5	9.7	11	7.5	7.2	7.1	5.9	6.1
16	7.2	9.2	7.0	6.0	7.8	8.4	10	7.8	11	6.9	6.8	5.8
17	7.0	9.0	7.0	5.5	7.7	11	9.6	8.0	8.1	6.2	9.5	5.5
18	6.8	9.0	7.0	5.2	7.4	11	8.1	8.2	7.9	6.1	8.0	5.3
19	6.6	9.0	7.0	5.0	7.8	12	8.0	7.5	7.1	6.0	7.0	5.0
20	7.0	8.5	6.5	4.5	8.3	12	7.3	7.2	7.5	6.1	6.7	5.3
21	7.2	8.5	6.5	4.6	8.7	11	7.5	7.2	7.7	5.7	6.9	5.4
22	7.2	8.0	6.5	5.0	8.5	11	7.5	7.7	6.6	5.5	6.5	5.6
23	7.0	8.0	6.0	5.4	7.9	9.8	7.5	7.8	6.4	5.1	6.5	6.0
24	7.0	7.7	6.4	5.8	7.8	9.2	12	7.9	6.1	5.5	5.9	6.1
25	7.2	7.6	6.8	6.2	7.4	10	7.3	8.8	6.1	7.9	5.9	6.5
26	7.0	6.5	7.0	6.7	7.6	15	6.1	8.8	5.9	8.9	5.9	6.5
27	7.0	6.5	7.0	6.6	7.3	13	7.8	15	5.8	6.9	5.1	7.3
28	6.5	6.5	7.2	8.4	7.2	11	7.7	10	5.6	6.2	5.0	7.8
29	6.7	6.5	7.0	8.0	8.0	10	8.2	8.9	5.5	6.0	5.0	7.0
30	6.8	6.0	6.6	6.8	---	9.9	8.1	8.4	5.6	5.7	5.0	6.9
31	7.0	---	6.8	6.7	---	10	---	8.0	---	8.5	5.3	---
TOTAL	210.7	245.0	220.8	215.8	217.8	302.4	283.8	248.2	213.9	220.7	199.6	176.4
MEAN	6.80	8.17	7.12	6.96	7.51	9.75	9.46	8.01	7.13	7.12	6.44	5.88
MAX	7.2	9.9	8.0	9.0	9.0	15	13	15	11	14	9.5	7.8
MIN	6.0	6.0	6.0	4.5	5.5	7.6	6.1	6.5	5.5	5.1	5.0	5.0
AC-FT	41	486	438	428	432	600	563	492	424	438	396	350

CAL YR 1983 TOTAL 2655.7 MEAN 7.28 MAX 19 MIN 4.6 AC-FT 5270
WTR YR 1984 TOTAL 2755.1 MEAN 7.53 MAX 15 MIN 4.5 AC-FT 5460

06449500 LITTLE WHITE RIVER NEAR ROSEBUD, SD

LOCATION.--Lat 43°19'32", long 100°53'00", in SW¼NW¼ sec.28, T.39 N., R.30 W., Todd County, Hydrologic Unit 10140203, on left bank at downstream side of bridge on U.S. Highway 18, 0.3 mi downstream from Scabby Creek, 0.7 mi downstream from Soldier Creek, and 6.4 mi north of Rosebud.

DRAINAGE AREA.--1,020 mi^2, approximately, of which about 760 mi^2 probably contributes directly to surface runoff.

PERIOD OF RECORD.--May 1943 to current year. Prior to October 1965, published as South Fork White River near Rosebud.

REVISED RECORDS.--WSP 1056: 1943, drainage area. WSP 1309: 1946(M).

GAGE.--Water-stage recorder. Datum of gage is 2,294.09 ft National Geodetic Vertical Datum of 1929. Prior to May 11, 1948, nonrecording gage at same site and datum.

REMARKS.--Records fair except those for winter period, Nov. 28 to Feb. 17, and those for period of no gage-height record, Mar. 17 to June 11, which are poor. Some small diversions for irrigation and some storage in several small lakes above station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--41 years, 111 ft^3/s (80,420 acre-ft/yr); median of yearly mean discharges, 110 ft^3/s (79,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,640 ft^3/s June 11, 1967 (gage height, 14.09 ft), from rating curve extended above 1,300 ft^3/s; minimum daily, 10 ft^3/s Jan. 4, 1949, Feb. 20, 1955.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 300 ft^3/s Apr. 8; maximum gage height, 6.88 ft Dec. 1 (backwater from ice), no peak above base of 330 ft^3/s; minimum daily discharge, 46 ft^3/s Sept. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	98	111	90	110	120	186	190	90	110	81	90	49
2	97	111	95	110	130	186	190	75	100	88	79	48
3	105	110	100	110	120	186	210	70	105	108	78	49
4	98	110	105	115	120	186	240	80	110	108	81	48
5	99	110	110	115	115	193	220	90	110	97	78	50
6	93	108	110	115	120	198	250	110	130	90	72	48
7	98	106	105	120	125	202	270	130	120	87	72	50
8	93	119	105	120	125	179	300	110	100	89	68	49
9	86	131	105	115	135	180	290	100	95	112	53	52
10	84	112	110	105	135	188	270	110	100	106	53	50
11	99	114	105	100	150	186	250	120	110	107	55	55
12	94	116	105	90	170	186	240	130	112	99	54	61
13	92	120	110	90	160	186	240	160	104	92	52	61
14	92	122	110	85	180	186	250	190	106	90	52	62
15	93	116	100	85	170	186	270	160	105	86	55	57
16	93	114	100	85	160	189	250	171	136	86	65	49
17	93	116	95	85	120	210	228	130	130	79	74	52
18	101	116	95	82	96	240	200	140	127	76	67	53
19	112	114	95	80	109	220	190	130	131	75	60	54
20	117	118	95	80	123	200	190	120	143	76	57	50
21	109	118	92	85	137	240	160	120	135	71	57	50
22	109	131	92	95	142	250	150	110	124	68	57	55
23	109	148	90	110	148	240	130	120	111	65	55	50
24	108	146	95	110	155	230	120	120	102	65	54	54
25	105	133	100	115	156	220	120	130	98	74	67	49
26	107	131	100	115	167	210	140	150	97	93	55	54
27	100	107	100	115	171	210	150	160	93	93	53	49
28	100	100	105	110	165	230	120	140	89	75	50	48
29	105	100	105	110	176	220	100	130	86	67	49	46
30	104	95	105	110	---	210	110	120	81	65	49	52
31	103	---	110	110	---	200	---	120	---	86	48	---
TOTAL	3096	3503	3139	3182	4100	6333	6038	3836	3300	2654	1909	1554
MEAN	99.9	117	101	103	141	204	201	124	110	85.6	61.6	51.8
MAX	117	148	110	120	180	250	300	190	143	112	90	62
MIN	84	95	90	80	96	179	100	70	81	65	48	46
AC-FT	614	6950	6230	6310	8130	12560	11980	7610	6550	5260	3790	3080

CAL YR 1983	TOTAL	49756	MEAN	136	MAX	482	MIN	65	AC-FT	98690
WTR YR 1984	TOTAL	42644	MEAN	117	MAX	300	MIN	46	AC-FT	84580

06450500 LITTLE WHITE RIVER BELOW WHITE RIVER, SD

LOCATION.--Lat 43°36'04", long 100°44'52", in SW¼NW¼ sec.23, T.42 N., R.29 W., Mellette County, Hydrologic Unit 10140203, on left bank at downstream side of bridge on U.S. Highway 83, 1.3 mi downstream from Pine Creek and 2.0 mi north of town of White River.

DRAINAGE AREA.--1,570 mi², approximately, of which about 1,310 mi² probably contributes directly to surface runoff.

PERIOD OF RECORD.--October 1949 to current year. Prior to October 1965, published as South Fork White River below White River.

GAGE.--Water-stage recorder. Datum of gage is 1,912.78 ft National Geodetic Vertical Datum of 1929. Prior to June 8, 1968, at site 0.8 mi downstream at datum 4.50 ft lower.

REMARKS.--Records fair except those for winter period, Nov. 28 to Feb. 29, which are poor. Diurnal fluctuations caused by small powerplant 2.2 mi upstream. Several small diversions for irrigation and some storage in several small lakes above station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--35 years, 129 ft³/s (93,460 acre-ft/yr); median of yearly mean discharges, 130 ft³/s (94,200 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,700 ft³/s June 12, 1967 (gage height, 10.02 ft), site and datum then in use; maximum gage height, 11.21 ft June 7, 1968, site and datum then in use; maximum gage height at present site and datum, 15.46 ft June 7, 1968, from floodmarks; no flow for parts of several days in 1952, 1954, 1956; minimum daily discharge, 7 ft³/s July 31, Aug. 31, Sept. 1, 1952.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 800 ft³/s at 0600 hours, July 3 (gage height, 4.06 ft); maximum gage height observed, 5.31 ft Jan. 30 (backwater from ice); minimum daily discharge, 31 ft³/s Aug. 28, 30, 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	107	84	75	110	130	427	200	159	116	92	86	34
2	122	86	85	115	135	427	193	146	113	88	56	52
3	102	102	95	115	130	383	216	119	99	112	54	36
4	102	85	100	120	130	343	275	132	102	110	78	45
5	86	84	105	125	120	297	279	126	102	94	59	36
6	97	76	110	130	125	321	305	136	105	90	54	33
7	91	79	110	130	130	297	313	166	116	90	54	35
8	89	94	105	130	140	189	290	153	87	95	59	40
9	86	104	105	125	140	275	282	136	79	113	47	43
10	74	94	110	115	150	189	259	136	103	108	43	49
11	79	86	110	110	150	216	255	145	107	116	66	71
12	71	89	105	100	160	233	220	149	100	84	49	56
13	84	89	105	90	160	233	271	158	98	79	36	43
14	81	86	105	90	170	212	294	153	92	81	38	43
15	76	86	110	90	160	182	330	143	99	75	36	56
16	60	81	110	90	150	179	301	151	124	74	38	52
17	76	71	105	85	140	156	224	108	160	74	61	45
18	69	76	105	85	200	175	216	129	133	61	59	45
19	74	76	100	80	230	169	212	136	167	61	54	44
20	89	74	100	80	220	172	212	130	155	70	54	45
21	94	95	100	85	210	182	204	127	158	59	45	44
22	102	84	105	95	200	189	200	123	140	54	45	47
23	97	76	100	105	180	212	182	108	140	69	45	51
24	89	78	90	115	180	189	159	108	132	54	45	60
25	99	122	100	120	180	204	162	124	133	59	41	60
26	94	79	100	120	170	200	182	126	124	86	49	57
27	84	69	100	115	190	208	179	136	121	94	41	63
28	84	70	105	115	250	224	175	153	106	59	31	73
29	94	70	105	115	300	220	153	146	99	59	41	71
30	91	65	105	115	---	220	193	132	108	52	31	67
31	89	---	110	120	---	200	---	119	---	74	31	---
TOTAL	2732	2510	3175	3335	4930	7323	6936	4213	3518	2486	1526	1496
MEAN	88.1	83.7	102	108	170	236	231	136	117	80.2	49.2	49.9
MAX	122	122	110	130	300	427	330	166	167	116	86	73
MIN	60	65	75	80	120	156	153	108	79	52	31	33
AC-FT	542	4980	6300	6610	9780	14530	13760	8360	6980	4930	3030	2970

CAL YR 1983 TOTAL 61038 MEAN 167 MAX 3220 MIN 53 AC-FT 121100
WTR YR 1984 TOTAL 44180 MEAN 121 MAX 427 MIN 31 AC-FT 87630

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06452000 WHITE RIVER NEAR OACOMA, SD

LOCATION.--Lat 43°44'54", long 99°33'22", in SE¼SW¼ sec.3, T.103 N., R.73 W., Lyman County, Hydrologic Unit 10140204, on left bank at downstream side of bridge on State Highway 47, 1.5 mi downstream from Wagner Draw, 1.8 mi upstream from high-water line of Lake Francis Case, and 8.8 mi southwest of Oacoma.

DRAINAGE AREA.--10,200 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1928 to current year.

REVISED RECORDS.--WSP 786: Drainage area. WSP 1309: 1929-30(M).

GAGE.--Water-stage recorder. Datum of gage is 1,377.29 ft National Geodetic Vertical Datum of 1929. See WSP 1709, 1729, or 1917 for history of changes prior to Feb. 27, 1960.

REMARKS.--Records good except those for winter period, Nov. 19 to Mar. 20, which are poor. Some diversions for irrigation above station. Gage-height telemeter and Corps of Engineers satellite data-collection platform at station.

AVERAGE DISCHARGE.--56 years, 529 ft³/s (383,300 acre-ft/yr); median of yearly mean discharges, 450 ft³/s (326,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 51,900 ft³/s Mar. 30, 1952 (gage height, 15.40 ft), site and datum then in use; maximum gage height, 23.59 ft Mar. 14, 1978 (ice jam); no flow Aug. 14-28, 1971, July 16-23, 1974, Aug. 29 to Sept. 9, Sept. 13, 1976, July 23 to Aug. 7, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,290 ft³/s at 1000 hours, June 14 (gage height, 8.96 ft), no other peak above base of 5,500 ft³/s; maximum gage height, 9.37 ft Mar. 20 (backwater from ice); minimum daily discharge, 26 ft³/s Sept. 20.

Rating table (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-10, June 30 to July 21, Aug. 26 to Sept. 30;
stage-discharge relation affected by ice Nov. 19 to Mar. 20)

3.3	26	4.3	190	6.0	1,300
3.5	43	4.6	295	7.0	2,470
3.7	66	5.0	485	8.0	4,100
4.0	117				

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	57	111	73	85	200	550	507	1620	1320	260	131	62
2	56	109	70	90	300	500	554	2090	322	225	125	54
3	56	111	70	95	400	450	1220	2020	554	209	109	50
4	73	111	72	100	450	400	1080	2060	462	190	129	44
5	72	115	75	105	450	370	849	1700	430	173	134	41
6	86	117	72	110	400	350	753	1750	409	196	123	40
7	100	119	70	110	350	320	3020	1620	385	181	115	38
8	103	109	70	105	300	300	2050	1200	315	170	100	37
9	109	127	75	100	300	280	1580	2050	323	499	87	33
10	113	125	75	95	320	250	1500	1740	655	319	70	30
11	119	131	75	90	320	250	1490	1440	841	242	69	29
12	121	145	70	90	310	240	1640	1040	638	222	69	30
13	107	347	70	85	300	240	2410	910	638	181	66	30
14	105	536	70	85	320	250	2750	808	3430	196	54	32
15	103	430	75	80	310	250	2120	722	2860	202	56	32
16	104	357	75	80	300	300	1920	665	1880	215	55	32
17	105	362	75	75	280	500	1810	598	1250	170	56	33
18	105	380	73	75	300	700	1220	535	908	165	45	28
19	100	300	70	70	450	1000	776	513	2400	157	43	30
20	91	200	70	70	700	2500	598	462	1830	142	49	26
21	105	150	68	70	1000	1400	502	419	1700	428	61	31
22	117	100	66	75	1150	1130	451	404	1440	404	63	30
23	108	90	65	85	1200	1200	419	390	875	242	641	31
24	98	80	65	90	1150	1200	385	375	718	202	1170	32
25	115	75	65	90	1050	866	362	371	1110	184	776	34
26	125	70	70	100	900	715	375	353	693	274	502	34
27	129	70	85	110	750	679	399	479	490	196	315	33
28	123	73	90	130	700	605	414	1080	404	121	225	39
29	119	75	90	110	650	579	754	672	362	103	162	42
30	117	75	90	120	---	542	2580	536	299	117	113	43
31	113	---	85	150	---	536	---	756	---	142	79	---
TOTAL	3154	5200	2284	2925	15610	19452	36488	31379	29941	6727	5792	1080
MEAN	102	173	73.7	94.4	538	627	1216	1012	998	217	187	36.0
MAX	129	536	90	150	1200	2500	3020	2090	3430	499	1170	62
MIN	56	70	65	70	200	240	362	353	299	103	43	26
AC-FT	626	10310	4530	5800	30960	38580	72370	62240	59390	13340	11490	2140

CAL YR 1983	TOTAL	255963	MEAN	701	MAX	18800	MIN	54	AC-FT	507700
WTR YR 1984	TOTAL	160032	MEAN	437	MAX	3430	MIN	26	AC-FT	317400

06452000 WHITE RIVER NEAR OACOMA, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1946-53, 1969, 1972 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to September 1976, October 1977 to Sept. 30, 1981.

WATER TEMPERATURES: October 1974 to September 1976, October 1978 to current year.
SUSPENDED SEDIMENT DISCHARGE: October 1971 to September 1976, Oct. 1, 1981, to current year.

REMARKS.--Sediment-discharge records fair. Flow affected by ice Nov. 19 to Mar. 20. Sediment-discharge records prior to Oct. 1, 1971, on file in the District office, Corps of Engineers, Omaha, NE.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,950 micromhos Aug. 8, 1980; minimum daily, 370 micromhos Mar. 17, 1975.
WATER TEMPERATURES: Maximum daily, 30.0°C July 30, 1975, July 10, 1976, July 10, 1980, Aug. 25, 1983; minimum daily, 1.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 72,300 mg/L Apr. 15, 1974; minimum daily mean, 0 mg/L July 17-23, 1974, Aug. 29 to Sept. 9, Sept. 13, 1976.
SEDIMENT LOADS: Maximum daily, 1,640,000 tons May 17, 1982; 0 ton July 17-23, 1974, Aug. 29 to Sept. 9, Sept. 13, 1976.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum daily, 28.0°C Aug. 6; minimum daily, -1.0°C on many days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 58,100 mg/L Aug. 24; minimum daily mean, 154 mg/L Mar. 12.
SEDIMENT LOADS: Maximum daily, 335,000 tons June 14; minimum daily, 27 tons Sept. 21.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE, AIR (DEG C)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT												
06...	1550	88	570	8.1	14.5	17.5	190	734	9.1	99	>1000	290
DEC												
27...	1200	85	778	7.7	-10.0	.0	40	729	12.7	91	K18	270
FEB												
23...	1335	1190	534	8.0	5.5	.5	1000	729	14.3	104	K200	5600
APR												
19...	0910	823	795	7.9	9.0	11.0	390	734	10.4	98	<5	K20
JUN												
13...	0945	665	582	8.0	18.0	19.0	950	738	8.2	92	K60	K27
AUG												
08...	0900	87	724	8.1	19.5	22.0	330	732	7.9	94	230	K130

DATE	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
OCT												
06...	150	0	49	6.6	73	50	3	9.1	181	120	8.8	.50
DEC												
27...	220	0	70	11	89	45	3	11	317	120	11	.60
FEB												
23...	140	8	44	7.9	77	53	3	5.0	135	160	9.2	.30
APR												
19...	230	45	69	13	83	43	3	9.2	182	220	12	.50
JUN												
13...	70	0	23	3.0	100	74	5	6.5	156	120	12	.60
AUG												
08...	150	0	50	5.5	100	58	4	9.0	152	200	10	.60

< Less than.
> More than.
K Non-ideal colony count.

06452000 WHITE RIVER NEAR OACOMA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER AC-FT)	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	PHOS- PHORUS TOTAL (MG/L AS PO4)
OCT 06...	43	411	420	.56	98	<.10	.020	.03	1.3	.350	1.1
DEC 27...	51	567	550	.77	130	.75	.070	.09	.70	.250	.77
FEB 23...	20	421	410	.57	1350	.74	.280	.36	2.6	1.90	5.8
APR 19...	25	571	540	.78	1270	.46	.040	.05	3.0	1.70	5.2
JUN 13...	26	450	390	.61	808	.99	.080	.10	7.0	2.50	--
AUG 08...	30	511	500	.70	120	<.10	.020	.03	2.1	.520	--

DATE	PHOS- PHORUS, DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)
OCT 06...	.010	.020	<10	12	36	<.5	<1	<1	<3	17	7
DEC 27...	.300	.120	--	--	--	--	--	--	--	--	--
FEB 23...	.460	<.010	20	6	24	<.5	<1	<1	<3	7	12
APR 19...	.090	.050	10	5	47	<.5	<1	1	<3	13	7
JUN 13...	.110	.020	<10	10	21	<1.0	<1	<1	<3	11	7
AUG 08...	<.010	<.010	--	--	--	--	--	--	--	--	--

DATE	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 06...	3	50	6	.3	<10	6	1	<1	360	15	5
FEB 23...	1	48	7	<.1	<10	2	2	<1	350	<6	9
APR 19...	<1	60	5	.2	<10	3	3	<1	510	6	18
JUN 13...	<1	40	3	<.1	<10	3	3	<1	180	19	<3

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06452000 WHITE RIVER NEAR OACOMA, SD--Continued

TEMPERATURE, WATER (DEG C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.0	9.0	---	---	.0	1.0	---	7.0	19.0	---	26.0	20.0
2	---	9.0	---	---	---	.0	5.0	7.0	16.0	26.0	26.0	---
3	14.0	11.0	---	---	---	1.0	3.0	8.0	---	25.0	26.0	---
4	12.0	10.0	---	.0	---	---	5.0	9.0	20.0	24.0	26.0	18.0
5	14.0	11.0	---	---	---	.0	7.0	10.0	19.0	25.0	---	17.0
6	17.5	---	---	---	---	-1.0	9.0	---	19.0	21.0	28.0	21.0
7	14.0	10.0	.0	---	---	-1.0	6.0	8.0	20.0	21.0	27.0	16.0
8	11.0	8.0	---	---	.0	.0	---	10.0	18.0	---	22.0	16.0
9	---	5.0	---	---	---	.0	7.0	9.0	19.0	26.0	25.0	---
10	12.0	3.0	---	---	---	1.0	7.0	13.0	---	26.0	24.0	17.0
11	13.0	---	---	-1.0	---	---	9.0	15.0	16.0	25.0	26.0	16.0
12	9.0	5.0	---	---	---	.0	7.0	16.0	19.0	25.0	---	17.0
13	4.0	---	---	---	---	.0	5.0	---	19.0	25.0	25.0	18.0
14	5.0	7.0	-1.0	---	---	3.0	6.0	17.0	22.0	24.0	25.0	16.0
15	7.0	6.0	---	---	.0	1.0	---	15.0	24.0	---	26.0	15.0
16	---	3.0	---	---	---	1.0	11.0	19.0	23.0	25.0	24.0	---
17	8.0	3.0	---	---	---	.0	13.0	19.0	---	23.0	24.0	15.0
18	9.0	4.0	---	-1.0	---	---	13.0	18.0	26.0	24.0	25.0	18.0
19	9.0	4.0	---	---	---	.0	11.0	19.0	24.0	25.0	---	21.0
20	10.0	---	---	---	---	3.0	13.0	---	24.0	25.0	23.0	19.0
21	9.0	1.0	-1.0	---	---	1.0	10.0	17.0	22.0	25.0	22.0	19.0
22	9.0	1.0	---	---	1.0	2.0	---	14.0	27.0	---	22.0	18.0
23	---	.0	---	.0	.5	3.0	12.0	16.0	24.0	25.0	21.0	---
24	11.0	---	---	---	---	6.0	13.0	19.0	---	22.0	21.0	7.0
25	4.0	---	---	---	1.0	---	11.0	15.0	24.0	22.0	24.0	7.0
26	6.0	---	---	---	---	7.0	10.0	15.0	23.0	23.0	---	6.0
27	10.0	---	.0	---	-1.0	4.0	6.0	---	24.0	24.0	24.0	7.0
28	10.0	---	---	---	-1.0	3.0	6.0	---	25.0	24.0	25.0	7.0
29	6.0	---	---	---	.0	4.0	---	15.0	24.0	---	24.0	6.0
30	---	-1.0	---	---	---	4.0	6.0	17.0	23.0	24.0	23.0	---
31	10.0	---	---	---	---	5.0	---	21.0	---	25.0	21.0	---

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)
OCT											
06	1550	89	17.5	--	32	39	60	89	97	99	100
27	1300	117	10.0	100	--	--	--	--	--	--	--
DEC											
27...	1190	85	.0	--	--	--	--	70	81	86	99
FEB											
23...	1410	1200	.5	--	71	76	88	99	99	100	--
MAR											
22...	1220	1060	2.0	--	55	56	82	97	99	100	--
APR											
19	0900	808	11.0	--	77	82	89	98	98	100	
JUN											
13...	1100	645	19.0	--	73	88	98	99	99	100	--
14...	1605	5090	22.0	--	40	42	47	90	96	99	100
JUL											
17...	1200	170	24.0	100	95	97	99	100	--	--	--
AUG											
08	0900	87	22.0	100	84	90	96	100			
SEP											
06...	1515	38	21.0	100	97	98	99	100	--	--	--

06452000 WHITE RIVER NEAR OACOMA, SD--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	57	294	45	111	3130	938	73	714	141
2	56	240	36	109	2440	718	70	703	133
3	56	184	28	111	2590	776	70	692	131
4	73	288	57	111	2130	638	72	680	132
5	72	482	94	115	1090	338	75	669	135
6	86	1020	237	117	1060	335	72	657	128
7	100	1220	329	119	1040	334	70	646	122
8	103	10600	2950	109	790	232	70	598	113
9	109	10000	2940	127	718	246	75	552	112
10	113	9080	2770	125	592	200	75	506	102
11	119	9700	3120	131	810	286	75	459	93
12	121	11200	3660	145	736	288	70	412	78
13	107	10200	2950	347	12600	11800	70	366	69
14	105	7900	2240	536	22000	31800	70	319	60
15	103	4700	1310	430	21300	24700	75	310	63
16	104	4500	1260	357	19200	18500	75	302	61
17	105	4600	1300	362	17800	17400	75	294	60
18	105	3600	1020	380	15500	15900	73	286	56
19	100	2100	567	300	13200	10700	70	278	53
20	91	1200	295	200	12200	6590	70	269	51
21	105	1810	513	150	10900	4410	68	261	48
22	117	1800	569	100	8470	2290	66	266	47
23	108	1760	513	90	7500	1820	65	271	48
24	98	1710	452	80	6530	1410	65	275	48
25	115	1300	404	75	5570	1130	65	280	49
26	125	3000	1010	70	4500	850	70	285	54
27	129	6100	2120	70	3630	686	85	290	67
28	123	7500	2490	73	2660	524	90	274	67
29	119	4320	1390	75	1690	342	90	257	62
30	117	3700	1170	75	726	147	90	240	58
31	113	3090	943	---	---	---	85	224	51
TOTAL	3154	---	38782	5200	---	156328	2284	---	2492
		JANUARY			FEBRUARY			MARCH	
1	85	208	48	200	287	155	550	528	784
2	90	191	46	300	444	360	500	1330	1800
3	95	174	45	400	2600	2810	450	1340	1630
4	100	158	43	450	5200	6320	400	1300	1400
5	105	160	45	450	4500	5470	370	1250	1250
6	110	162	48	400	2800	3020	350	826	781
7	110	165	49	350	1300	1230	320	283	245
8	105	168	48	300	925	749	300	183	148
9	100	170	46	300	923	748	280	188	142
10	95	172	44	320	920	795	250	313	211
11	90	175	43	320	918	793	250	250	169
12	90	225	55	310	916	767	240	154	100
13	85	275	63	300	914	740	240	590	382
14	85	325	75	320	911	787	250	1500	1010
15	80	375	81	310	909	761	250	2350	1590
16	80	425	92	300	1270	1030	300	1000	810
17	75	475	96	280	1630	1230	500	200	270
18	75	526	107	300	1990	1610	700	175	331
19	70	460	87	450	2350	2860	1000	1200	3240
20	70	395	75	700	2710	5120	2500	4550	30700
21	70	330	62	1000	3070	8290	1400	4550	17200
22	75	264	53	1150	3430	10700	1130	4750	14500
23	85	199	46	1200	3220	10400	1200	6800	22000
24	90	209	51	1150	2240	6960	1200	7420	24000
25	90	219	53	1050	1270	3600	866	6400	15000
26	100	228	62	900	1230	2990	715	5600	10800
27	110	238	71	750	1190	2410	679	4400	8070
28	130	248	87	700	698	1320	605	3300	5390
29	110	258	77	650	411	721	579	1800	2810
30	120	268	87	---	---	---	542	1650	2410
31	150	278	113	---	---	---	536	1430	2070
TOTAL	2925	---	1998	15610	---	84746	19452	---	171243

06452000 WHITE RIVER NEAR OACOMA, SD--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	507	1440	1970	1620	33200	145000	1320	18200	64900
2	554	1750	2620	2090	34000	192000	322	17300	15000
3	1220	6500	21400	2020	27500	150000	554	15400	23000
4	1080	4250	12400	2060	24200	135000	462	14300	18100
5	849	2700	6190	1700	16400	75300	430	13500	15700
6	753	2330	4740	1750	12000	56700	409	11700	12900
7	3020	18800	153000	1620	9500	41600	385	9600	9980
8	2050	18200	101000	1200	7000	22700	315	8800	7480
9	1580	16000	68300	2050	11200	62000	323	9400	8200
10	1500	14000	56700	1740	10700	50300	655	11000	19500
11	1490	10500	42200	1440	10700	41600	841	11600	26300
12	1640	8900	39400	1040	10500	29500	638	11400	19600
13	2410	8190	53300	910	9200	22600	638	18000	31000
14	2750	7800	57900	808	7250	15800	3430	36200	335000
15	2120	6500	37200	722	5700	11100	2860	32700	253000
16	1920	4100	21300	665	4240	7610	1880	29500	150000
17	1810	3890	19000	598	2960	4780	1250	27500	92800
18	1220	2600	8560	536	1880	2720	908	26200	64200
19	776	1800	3770	513	1290	1790	2400	33000	214000
20	598	1150	1860	462	1150	1430	1830	35400	175000
21	502	912	1240	419	1000	1130	1700	26400	121000
22	451	800	974	404	772	842	1440	16700	64900
23	419	683	773	390	646	680	875	11700	27600
24	385	691	718	375	644	652	718	10700	20700
25	362	640	626	371	658	659	1110	15900	47700
26	375	843	854	353	562	536	693	12500	23400
27	399	908	978	479	700	905	490	10800	14300
28	414	867	969	1080	1800	5250	404	10100	11000
29	754	4040	8220	672	1200	2180	362	9800	9580
30	2580	39500	275000	536	870	1260	299	8900	7180
31	---	---	---	756	5990	12200	---	---	---
TOTAL	36488	---	1003162	31379	---	1095824	29941	---	1903020
		JULY			AUGUST			SEPTEMBER	
1	260	6000	4210	131	6200	2190	62	11600	1940
2	225	3900	2370	125	5420	1830	54	10800	1570
3	209	2400	1350	109	9150	2690	50	10200	1380
4	190	1630	836	129	9000	3130	44	9440	1120
5	173	1750	817	134	6500	2350	41	8480	939
6	196	1980	1050	123	3680	1220	40	6800	734
7	181	1900	929	115	2020	627	38	5000	513
8	170	1600	734	100	634	171	37	2900	290
9	499	9600	12900	87	458	108	33	1900	169
10	319	19200	16500	70	823	156	30	1660	134
11	242	23500	15400	69	437	81	29	1190	93
12	222	20700	12400	69	475	88	30	724	59
13	181	12500	6110	66	513	91	30	655	53
14	196	11400	6030	54	2400	350	32	580	50
15	202	11000	6000	56	4770	721	32	487	42
16	215	10900	6330	55	3760	558	32	630	54
17	170	11700	5370	56	2390	361	33	767	68
18	165	9200	4100	45	801	97	28	405	31
19	157	9400	3980	43	910	106	30	347	28
20	142	12400	4750	49	1120	148	26	397	28
21	428	18900	21800	61	1030	170	31	327	27
22	404	22000	24000	63	1960	333	30	413	33
23	242	21000	13700	641	17900	31000	31	390	33
24	202	20800	11300	1170	58100	184000	32	379	33
25	184	20600	10200	776	52900	111000	34	418	38
26	274	18600	13800	502	44800	60700	34	409	38
27	196	16000	8470	315	35100	29900	33	607	54
28	121	13500	4410	225	28500	17300	39	464	49
29	103	10700	2980	162	23500	10300	42	519	59
30	117	8060	2550	113	19400	5920	43	510	59
31	142	8120	3110	79	13400	2860	---	---	---
TOTAL	6727	---	228486	5792	---	470556	1080	---	9718

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06452500 LAKE FRANCIS CASE AT PICKSTOWN, SD

LOCATION.--Lat 43°04'05", long 98°33'15", in SE¼ sec.5, T.95 N., R.65 W., Charles Mix County, Hydrologic Unit 10140101, in tower 6 of outlet works at Fort Randall Dam, on Missouri River at Pickstown, 1.0 mi upstream from Randall Creek, and at mile 880.0.

DRAINAGE AREA.--263,500 mi², approximately.

STAGE-CONTENTS RECORDS

PERIOD OF RECORD.--December 1952 to current year (monthend contents only). Prior to October 1964, published as Fort Randall Reservoir at Pickstown.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Mar. 25, 1953, elevations determined from temporary nonrecording gages.

REMARKS.--Reservoir is formed by earthfill dam; storage began in December 1952; initial closure made July 1952. Maximum capacity, 5,574,000 acre-ft below elevation 1,375.0 ft (top of spillway gates). Normal maximum, 4,589,000 acre-ft below elevation 1,365.0 ft. Inactive storage, 1,184,000 acre-ft below elevation 1,310.0 ft. No dead storage; elevation of invert of lowest outlet is 1,227.0 ft. Figures given herein represent elevations at outlet works and total contents adjusted for wind effect.

The spillway consists of 21 taintor gates, each 40 ft wide by 29 ft high; spillway capacity, 490,000 ft³/s at pool elevation 1,375 ft. Crest of spillway is at elevation 1,346 ft. Normal releases are through 12 tunnels 22 ft in diameter. Installation of power units in 8 of these tunnels was completed in January 1956; maximum release through power tunnels is 46,000 ft³/s; maximum release through 4 other tunnels is 130,000 ft³/s at pool elevation 1,375 ft. Water is used for flood control, navigation, power, and incidental uses.

COOPERATION.--Elevations and contents furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 5,087,000 acre-ft June 20, 1962, affected by wind; minimum since initial filling, 1,450,000 acre-ft Oct. 23, 1956, affected by wind

EXTREMES FOR CURRENT YEAR.--Maximum contents, 4,528,000 acre-ft June 28; minimum contents, 2,424,000 acre-ft Dec. 5.

MONTHEND ELEVATION, IN FEET NGVD, AND CONTENTS,
IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

Date	Elevation	Contents	Change in contents
Sept. 30	1351.84	3423000	
Oct. 31	1345.14	2908000	-515000
Nov. 30	1338.70	2493000	-415000
Dec. 31	1345.91	2956000	+463000
CAL YR 1983			+309000
Jan. 31	1346.78	3018000	+62000
Feb. 29	1353.03	3508000	+490000
Mar. 31	1357.44	3901000	+393000
Apr. 30	1362.30	4335000	+434000
May 31	1360.12	4103000	-232000
June 30	1363.88	4495000	+392000
July 31	1356.89	3812000	-683000
Aug. 31	1356.94	3831000	+19000
Sept. 30	1354.31	3635000	-196000
WTR YR 1984			+212000

06453000 MISSOURI RIVER AT FORT RANDALL DAM, SD

LOCATION.--Lat 43°03'54", long 98°33'11", in NW¼NE¼ sec.8, T.95 N., R.65 W., Charles Mix County, Hydrologic Unit 10170101, in powerhouse of Fort Randall Dam on Missouri River at Pickstown, 0.8 mi upstream from Randall Creek, and at mile 879.8.

DRAINAGE AREA.--263,500 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1947 to current year. Prior to October 1969 published as "below Fort Randall Dam".

GAGE.--Totalizing flowmeters on each turbine in Fort Randall powerhouse. Prior to Nov. 10, 1965, water-stage recorder at site 7.0 mi downstream at datum 1,230.00 ft National Geodetic Vertical Datum of 1929 and Nov. 10, 1965, to June 30, 1969, at datum 5.00 ft lower (Corps of Engineers bench mark).

REMARKS.--Records good. Flow completely regulated by Lake Francis Case (see station 06452500). Many diversions for irrigation above station.

COOPERATION.--Daily discharge determined from flow through turbines furnished by Corps of Engineers.

AVERAGE DISCHARGE.--37 years, 25,200 ft³/s (18,257,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 447,000 ft³/s Apr. 12, 1952; maximum gage height, 20.82 ft Apr. 12, 1952 (site and datum then in use); minimum daily discharge, 100 ft³/s Mar. 29, 1962.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in April 1943 reached a stage of about 16.5 ft. Maximum stage known, in April 1881, was about 5 ft higher than that of April 1943, both at site 7.0 mi downstream.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge during year, 44,600 ft³/s Aug. 15, 20; minimum daily 500 ft³/s June 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33800	35000	29200	16700	13300	17000	11100	12000	16500	16300	42000	44000
2	33700	33100	31400	16000	10800	16800	8600	10400	20800	19200	42000	44000
3	33700	33700	29700	13300	11100	15600	5400	9900	23600	22100	41000	44000
4	33700	34500	27600	13700	11200	12300	5000	10300	26400	23100	42100	44000
5	34600	33800	25900	11300	11100	13300	5000	10600	23100	19500	43900	44000
6	35000	31800	19700	12200	14600	16300	4600	10400	18800	20700	44200	44500
7	34500	32300	19800	11400	16600	20700	5400	11000	15400	22400	44000	44500
8	34200	32900	20000	12000	15600	20500	4900	10000	13600	25700	44000	44500
9	34500	33200	18600	12700	16600	23200	5200	10000	12900	30200	44000	44500
10	34900	34200	18900	15900	11500	23300	5100	13500	13100	34000	44000	44500
11	34900	34000	19000	15300	10800	21900	5300	13700	14000	36800	44000	44500
12	32700	34300	19200	15600	11000	21500	2900	15400	8500	38500	44000	44500
13	32200	34000	19700	16900	13600	19600	2700	15600	3800	37800	44000	43000
14	33200	34300	20800	16800	14800	16700	2300	13500	500	38900	44500	43000
15	34800	33400	23300	16300	13500	15400	4100	13000	3200	39500	44600	43000
16	34700	33300	23100	19100	12400	16400	4700	13800	3000	40200	44500	43000
17	35300	32900	23000	18000	12400	16100	5100	16000	6800	42000	44500	43500
18	35500	32500	21900	18100	12800	21100	7300	15600	10800	42300	44500	43500
19	34500	33100	21600	18100	12500	22700	7300	15900	10600	43000	44500	43500
20	32500	29500	22500	17700	12200	23100	9800	15600	9900	44000	44600	42500
21	32800	29800	22200	17400	11500	23000	9500	15900	5800	42600	44500	42500
22	33700	30800	19900	17400	11600	21100	9400	18900	2100	42500	43100	42500
23	33900	35000	20400	17600	11700	19200	9600	18400	1800	42500	43000	42500
24	33900	35800	22800	17400	13500	13000	8300	20300	2300	43100	43100	42000
25	34700	35700	22600	17300	13700	12600	10500	21700	2700	43500	43000	42000
26	35000	35600	22100	14700	13400	5900	10200	20600	3000	41100	43000	41500
27	34600	35700	19200	14600	13200	4500	12500	18500	4800	41000	43000	42000
28	34100	31000	18300	15700	14300	3700	12500	11800	11100	42000	42000	42500
29	34000	28300	16600	15200	14900	11600	14700	12000	10600	42100	42000	42500
30	33900	28100	15600	14400	---	13600	12600	12000	13000	43100	43000	42500
31	35000	---	17700	13600	---	12000	---	11900	---	43000	43900	---
TOTAL	1058500	991600	672300	482400	376200	513700	221600	438200	312500	1102700	1348500	1299000
MEAN	34150	33050	21690	15560	12970	16570	7387	14140	10420	35570	43500	43300
MAX	35500	35800	31400	19100	16600	23300	14700	21700	26400	44000	44600	44500
MIN	32200	28100	15600	11300	10800	3700	2300	9900	500	16300	41000	41500
AC-FT	210000	1967000	1334000	956800	746200	1019000	439500	869200	619800	2187000	2675000	2577000

CAL YR 1983 TOTAL 8624500 MEAN 23630 MAX 37200 MIN 900 AC-FT17107000
WTR YR 1984 TOTAL 8817200 MEAN 24090 MAX 44600 MIN 500 AC-FT17489000

06453000 MISSOURI RIVER AT FORT RANDALL DAM, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to September 1978.
WATER TEMPERATURES: October 1974 to September 1978.
DISSOLVED OXYGEN: October 1974 to September 1978.

INSTRUMENTATION.--Water-quality monitor since June 1973.

REMARKS.--Water is supplied to the monitor from the raw water intake located in the penstocks. This location is 121 ft (37 m) below the normal pool surface. Depth of observation is 1,227 ft (374 m) above mean sea level. Records prior to October 1974 are on file in the District office, Corps of Engineers, Omaha, NE. In addition to the water-quality monitor, samples were collected once a month.

COOPERATION.--Records of specific conductance, water temperature, dissolved oxygen and pH were furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily mean, 850 micromhos Mar. 10, 1975; minimum daily mean, 606 micromhos Dec. 7, 1976.
WATER TEMPERATURES: Maximum daily mean, 25.5°C Aug. 9, 12-16, 25, 1975, July 31 to Aug. 2, Aug. 5, 10, 1977, Aug. 25, 1978; minimum daily mean, 0.0°C Jan. 21-26, 1975.
DISSOLVED OXYGEN: Maximum daily mean, 13.2 mg/L Jan. 2, 3, Feb. 5-11, 14-21, 1975; minimum daily mean, 6.7 mg/L Aug. 6, 8, 1977.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
NOV 14...	1500	35000	790	8.4	11.0	11.0	2.0	727	10.4	99	K1	<1
JAN 20...	0900	22000	840	8.6	-20.0	1.0	1.0	748	--	--	K2	K1
MAR 12...	1400	24000	850	8.5	-2.0	1.0	.90	730	--	--	<1	54
MAY 15...	0900	19500	840	8.3	13.0	8.0	1.4	735	7.7	68	K16	79
JUL 18...	1200	46300	790	8.3	24.0	19.0	14	734	18.8	211	34	48
SEP 05...	1445	44000	810	8.5	24.0	24.0	1.3	738	7.2	89	K2	K6

DATE	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV 14...	250	86	59	25	75	39	2	5.0	165	240	11	.50
JAN 20...	270	101	65	25	74	37	2	5.0	165	230	13	.60
MAR 12...	270	92	65	26	75	37	2	5.0	178	250	12	.50
MAY 15...	290	127	73	27	74	35	2	5.4	168	270	11	.50
JUL 18...	250	104	62	24	77	39	2	5.7	150	250	10	.50
SEP 05...	240	81	57	23	79	41	2	5.8	157	250	12	.50

< Less than.
K Non-ideal colony count.

06453000 MISSOURI RIVER AT FORT RANDALL DAM, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)
NOV 14...	5.0	521	520	.71	49200	<.10	.120	.15	.70	.030	.09	.030
JAN 20...	4.9	537	520	.73	31900	<.10	.090	.12	.30	<.010	--	.010
MAR 12...	5.0	565	550	.77	36600	.12	.110	.14	.30	.010	.03	.010
MAY 15...	5.6	592	570	.81	31200	.10	.090	.12	.70	.040	.12	.040
JUL 18...	4.7	494	520	.67	61800	.18	.020	.03	.40	.020	--	.010
SEP 05...	5.5	538	530	.73	63900	<.10	.020	.03	.90	.010	--	<.010

DATE	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
NOV 14...	.040	<10	2	40	<.5	1	1	<3	2	4	<1	66
JAN 20...	.050	--	--	--	--	--	--	--	--	--	--	--
MAR 12...	.020	<10	2	39	<.5	<1	<1	<3	<1	5	<1	58
MAY 15...	.030	<10	2	38	.8	<1	<1	<3	2	6	<1	71
JUL 18...	.020	--	--	--	--	--	--	--	--	--	--	--
SEP 05...	.030	<10	2	41	<1.0	<1	<1	<3	2	3	1	59

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 14...	3	<.1	<10	6	1	2	600	<6	6	95	8980	100
JAN 20...	--	--	--	--	--	--	--	--	--	3	178	100
MAR 12...	94	.3	<10	3	1	<1	610	<6	10	5	324	58
MAY 15...	220	<.1	<10	10	2	<1	660	<6	9	10	526	86
JUL 18...	--	--	--	--	--	--	--	--	--	41	5130	99
SEP 05...	21	<.1	<10	4	2	<1	590	<6	<3	--	--	--

< Less than.

06453010 MISSOURI RIVER AT GREENWOOD, SD

STAGE RECORDS

LOCATION.--Lat 42°55'11", long 98°23'01", in SW¼NW¼NW¼ sec.35, T.94 N., R.64 W., Charles Mix County, Hydrologic Unit 10170101, on left bank 0.25 mi southeast of Greenwood at mile 865.0.

PERIOD OF RECORD.--1957 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,200.00 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Stage regulated by Lake Francis Case 15.0 mi upstream (see station 06452500). Prior to Oct. 1, 1980, gage heights in files of Corps of Engineers.

GAGE HEIGHT (FEET), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28.13	28.34	27.39	28.90	24.61	25.17	24.00	23.86	24.52	24.17	---	29.91
2	28.13	28.21	27.53	28.64	24.11	24.84	23.38	23.70	25.41	25.18	---	29.88
3	28.15	27.94	27.63	28.29	23.75	23.98	22.41	23.39	26.19	25.91	---	29.87
4	28.19	28.28	27.27	27.44	23.74	24.37	22.17	23.23	26.82	26.07	---	29.84
5	28.24	28.19	26.99	27.13	23.86	---	22.03	23.36	26.52	26.09	---	29.80
6	28.33	27.94	26.17	26.25	24.99	---	21.78	23.40	26.03	25.57	---	29.86
7	28.27	27.91	25.86	26.16	25.20	---	22.00	23.46	25.02	25.94	---	29.88
8	28.16	27.87	25.83	25.62	25.22	---	21.90	23.37	24.69	26.47	---	29.85
9	28.23	27.96	25.83	25.46	25.04	---	21.94	23.27	24.05	27.17	30.43	29.85
10	28.33	28.05	25.56	25.92	24.42	---	21.86	23.70	24.02	27.97	30.42	29.86
11	28.21	28.12	25.61	26.36	23.58	---	21.91	24.28	24.25	28.18	30.41	29.83
12	28.17	28.25	25.64	26.34	23.66	---	21.61	24.55	24.07	28.84	30.39	29.36
13	27.84	28.05	25.75	27.85	23.93	25.86	21.25	24.57	21.51	28.74	30.36	29.76
14	27.99	28.13	25.85	27.97	24.80	25.46	21.26	24.56	21.14	28.68	30.38	29.57
15	28.17	28.07	26.16	27.72	24.51	25.10	21.45	24.08	21.15	28.80	30.37	29.61
16	28.38	28.05	26.69	27.82	24.07	24.94	21.81	24.35	21.20	---	30.35	29.61
17	28.34	28.07	26.82	27.96	24.04	25.08	21.62	24.35	21.67	---	30.34	29.67
18	28.33	27.89	28.12	27.64	24.02	25.74	22.14	24.93	23.25	---	30.31	29.69
19	28.36	27.98	29.37	27.70	24.08	26.22	22.36	24.62	23.01	---	30.28	29.68
20	28.05	27.68	29.55	27.69	24.01	26.27	22.81	24.73	23.38	---	30.28	29.60
21	27.98	27.28	29.87	27.71	23.95	26.42	23.19	24.81	23.14	---	30.29	---
22	27.96	27.30	29.88	27.65	23.80	26.24	23.22	25.09	21.23	---	30.12	---
23	28.14	28.22	29.70	27.51	23.83	25.75	23.27	25.33	21.10	---	29.96	---
24	28.12	28.38	29.89	27.65	24.11	24.97	22.69	25.64	21.11	---	29.99	---
25	28.25	28.42	29.96	27.15	24.39	23.82	23.18	25.83	21.13	---	29.97	---
26	28.28	28.39	29.97	26.37	24.33	23.68	23.46	25.93	21.13	---	29.96	---
27	28.38	28.37	30.25	25.69	24.28	21.79	23.77	25.77	21.33	---	29.94	---
28	28.09	28.02	29.52	25.27	24.40	21.87	23.61	24.74	22.47	---	29.81	---
29	28.17	27.40	29.48	25.13	25.39	22.83	24.41	23.27	23.52	---	29.73	---
30	28.15	27.09	29.23	25.10	---	23.91	24.39	23.86	23.64	---	29.79	---
31	28.23	---	29.20	24.60	---	24.54	---	23.74	---	---	29.89	---
MEAN	28.19	27.99	27.83	26.93	24.28	---	22.56	24.32	23.26	---	---	---
MAX	28.38	28.42	30.25	28.90	25.39	---	24.41	25.93	26.82	---	---	---
MIN	27.84	27.09	25.61	24.60	23.58	---	21.25	23.23	21.10	---	---	---

06453255 CHOTEAU CREEK NEAR AVON, SD

LOCATION.--Lat 42°55'24", long 98°06'21", in NW¼NW¼NW¼ sec.31, T.94 N., R.61 W., Bon Homme County, Hydrologic Unit 10170101, on left bank at downstream side of highway bridge, 6.3 mi southwest of Avon, 0.7 mi downstream from Dry Choteau Creek, and 12.7 mi upstream from mouth.

DRAINAGE AREA.--602 mi².

PERIOD OF RECORD.--Oct. 1, 1982, to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,290 ft, from topographic map.

REMARKS.--Records good. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 28	0115	528	5.34	May 28	2345	219	4.41
Apr. 3	1915	827	6.58	June 12	0130	*4350	*13.93
Apr. 8	1245	587	5.77	June 23	0800	3710	13.04
Apr. 15	1230	2400	10.97	July 10	0500	1380	8.49
Apr. 22	2100	392	5.29	July 10	1645	1140	7.80
May 1	0645	968	7.39				

Minimum daily discharge, 1.5 ft³/s Oct. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.9	2.6	3.6	2.7	6.5	16	184	823	59	336	20	6.8
2	1.7	2.5	3.5	2.7	6.5	15	158	597	56	273	19	6.9
3	2.2	2.7	3.2	3.1	7.0	15	560	650	50	224	18	7.2
4	2.0	2.9	3.2	3.2	7.0	14	662	606	48	187	22	7.2
5	1.7	2.9	3.2	3.2	4.8	12	428	473	52	156	19	6.9
6	1.6	3.0	3.2	3.2	4.6	11	410	396	66	130	17	7.1
7	1.9	3.0	3.2	3.2	4.6	9.0	566	420	74	112	18	6.6
8	1.7	3.1	3.2	3.2	6.2	6.4	580	364	131	107	18	6.4
9	1.8	3.3	3.2	3.2	9.4	7.5	465	282	117	114	15	6.2
10	1.8	3.1	3.2	3.0	9.4	8.0	312	222	262	756	15	6.1
11	1.8	3.1	3.4	3.0	9.4	8.2	320	228	416	564	14	6.1
12	1.7	3.0	3.5	3.0	9.4	8.5	914	229	3030	229	12	6.1
13	1.6	3.2	3.5	2.7	7.8	8.9	1290	186	1510	144	11	6.0
14	1.6	3.2	3.5	2.6	7.7	15	1470	161	1220	114	9.5	5.5
15	1.8	3.0	3.5	2.6	9.0	44	2280	133	877	98	10	5.4
16	1.7	2.9	3.6	2.7	11	32	1910	113	823	86	11	5.4
17	1.5	2.9	3.6	2.7	9.9	23	1210	92	800	77	11	5.4
18	1.8	2.9	3.4	2.6	10	23	763	87	644	68	10	5.4
19	2.3	4.6	3.2	2.6	5.7	20	475	85	459	61	9.0	5.4
20	2.2	5.0	3.2	2.3	7.2	35	334	74	697	52	9.0	5.3
21	2.2	4.3	3.2	2.3	7.1	85	278	67	913	46	9.8	5.1
22	2.1	4.6	3.2	2.2	7.1	155	346	59	1740	41	9.0	4.9
23	2.6	3.9	3.1	2.2	8.5	221	343	51	3590	35	8.5	5.0
24	2.2	3.6	3.0	2.2	9.9	274	253	43	2950	32	10	5.2
25	2.2	3.5	2.8	2.4	9.5	284	217	38	2070	30	11	5.2
26	2.7	3.5	2.5	2.6	11	241	198	34	1500	67	9.1	5.2
27	2.2	3.8	2.6	2.6	10	454	244	92	1150	41	8.5	5.2
28	2.7	3.6	2.7	3.7	12	490	248	177	883	33	8.3	5.2
29	2.7	3.2	2.7	4.5	15	377	245	169	659	28	7.3	5.2
30	2.2	3.6	2.7	5.0	---	275	591	99	466	24	7.3	5.2
31	2.6	---	2.7	6.0	---	219	---	78	---	21	7.6	---
TOTAL	62.7	100.5	98.3	93.2	243.2	3406.5	18254	7128	27312	4286	383.9	174.8
MEAN	2.02	3.35	3.17	3.01	8.39	110	608	230	910	138	12.4	5.83
MAX	2.7	5.0	3.6	6.0	15	490	2280	823	3590	756	22	7.2
MIN	1.5	2.5	2.5	2.2	4.6	6.4	158	34	48	21	7.3	4.9
AC-FT	12	199	195	185	482	6760	36210	14140	54170	8500	761	347

CAL YR 1983	TOTAL	25828.8	MEAN	70.8	MAX	669	MIN	1.5	AC-FT	51230
WTR YR 1984	TOTAL	61543.1	MEAN	168	MAX	3590	MIN	1.5	AC-FT	122100

06464500 KEYA PAHA RIVER AT WEWELA, SD

LOCATION.--Lat 43°01'42", long 99°46'45", in SE¼ sec.24, T.95 N., R.76 W., Tripp County, Hydrologic Unit 10150006, on left bank 13 ft downstream from bridge on U.S. Highway 183, 1.0 mi north of Wewela, 4.5 mi upstream from Holt Creek, and 11.5 mi downstream from Lost Creek.

DRAINAGE AREA.--1,070 mi², approximately.

PERIOD OF RECORD.--November 1937 to September 1940, October 1947 to current year. Monthly discharge only for October 1947, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 2,049.78 ft National Geodetic Vertical Datum of 1929. Prior to June 21, 1957, nonrecording gage at site 13 ft upstream at same datum.

REMARKS.--Records good except those for winter period, Nov. 26 to Mar. 15, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--39 years (water years 1939-40, 1948-84), 70.1 ft³/s (50,790 acre-ft/yr); median of yearly mean discharges, 58 ft³/s (42,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,430 ft³/s Mar. 31, 1952 (gage height, 13.08 ft); maximum gage height, 13.5 ft Mar. 25, 1950, from floodmark (backwater from ice); no flow Jan. 10 to Feb. 15, 1949, Aug. 19 to Sept. 14, 1976.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 250 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 12	1745	ice jam	*4.97	Apr. 30	2015	306	2.71
Mar. 22	1030	283	2.41	May 12	2130	253	2.46
Apr. 8	0145	888	4.34	May 30	0915	394	3.10
Apr. 14	1000	*1120	4.86	June 16	1100	273	a2.67

a Observed.
Minimum daily discharge, 23 ft³/s Aug. 31, Sept. 1-3, 5-7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	55	55	70	110	120	185	299	222	50	37	23
2	45	56	55	75	130	100	185	301	175	50	39	23
3	45	60	60	75	120	80	215	285	135	51	38	23
4	47	60	60	77	110	70	239	264	135	51	36	24
5	50	60	55	77	100	65	358	220	117	53	36	23
6	49	60	55	80	100	60	501	214	112	55	35	23
7	47	59	55	80	110	60	630	199	116	52	35	23
8	44	59	57	75	120	80	825	186	115	52	34	24
9	43	65	57	70	150	100	811	177	113	51	32	24
10	42	68	59	60	200	130	567	167	112	57	32	24
11	43	68	59	55	220	110	441	193	117	59	30	26
12	43	68	60	50	200	110	431	216	109	58	29	27
13	43	72	65	50	200	130	543	203	105	53	30	28
14	43	82	60	50	230	200	1020	180	104	50	31	27
15	43	83	60	45	220	300	867	163	117	49	29	28
16	43	77	55	40	210	382	634	147	230	51	32	28
17	43	75	55	35	207	318	481	138	221	51	34	28
18	42	73	50	35	200	189	365	130	117	49	34	28
19	45	71	50	31	190	188	326	125	84	47	33	28
20	55	70	50	30	190	196	286	120	84	45	46	27
21	57	68	45	35	170	265	250	115	81	43	109	26
22	55	67	45	45	200	273	231	109	74	41	42	26
23	52	71	41	55	249	254	225	103	72	38	33	28
24	51	65	45	60	249	235	210	99	68	36	32	30
25	50	66	50	60	230	219	195	103	62	41	32	32
26	49	65	50	65	180	205	208	105	64	117	29	34
27	49	60	55	65	170	212	231	226	57	70	28	34
28	50	60	60	70	160	214	227	332	55	44	27	36
29	50	60	60	70	150	205	229	333	50	42	26	37
30	52	55	65	80	---	196	288	287	59	40	25	37
31	54	---	65	100	---	192	---	238	---	38	23	---
TOTAL	1469	1978	1713	1865	5075	5458	12204	5977	3273	1584	1088	829
MEAN	47.4	65.9	55.3	60.2	175	176	407	193	109	51.1	35.1	27.6
MAX	57	83	65	100	249	382	1020	333	230	117	109	37
MIN	42	55	41	30	100	60	185	99	50	36	23	23
AC-FT	291	3920	3400	3700	10070	10830	24210	11860	6490	3140	2160	1640

CAL YR 1983	TOTAL	48327	MEAN	132	MAX	1120	MIN	31	AC-FT	95860
WTR YR 1984	TOTAL	42513	MEAN	116	MAX	1020	MIN	23	AC-FT	84320

06466700 LEWIS AND CLARK LAKE AT SPRINGFIELD, SD

STAGE RECORDS

LOCATION.--Lat 42°51'21", long 97°53'06", in SW¼NE¼SW¼ sec.24, T.93 N., R.60 W., Bon Homme County, Hydrologic Unit 10170101, on left bank at east edge of Springfield at mile 832.20.

PERIOD OF RECORD.--August 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,200.00 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Stage regulated by Gavins Point Dam 21.2 mi downstream. Prior to Oct. 1, 1980, gage heights in files of Corps of Engineers.

GAGE HEIGHT (FEET), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.00	9.20	8.72	9.54	9.06	6.43	6.40	6.99	6.25	---	---	9.72
2	8.99	9.25	8.57	9.49	9.12	6.65	6.53	7.10	6.45	---	---	9.74
3	8.98	9.36	8.64	9.44	8.99	6.75	6.66	6.98	6.80	---	---	9.79
4	8.96	9.28	8.73	9.35	8.87	6.60	6.64	6.82	7.09	---	---	9.77
5	8.96	9.27	8.80	9.17	8.50	6.29	6.60	6.67	7.44	---	---	9.81
6	9.05	9.27	8.84	9.03	7.96	6.32	6.63	6.60	7.37	---	---	9.80
7	9.04	9.04	8.74	8.86	8.16	6.74	6.76	6.57	7.26	---	---	9.77
8	9.07	8.70	8.75	8.79	8.55	8.53	6.85	6.50	6.82	---	---	9.79
9	9.08	8.69	8.74	8.68	8.93	9.52	7.04	6.32	6.68	---	9.63	9.83
10	9.07	8.77	8.70	8.63	9.07	9.77	7.07	6.12	6.59	---	9.64	9.87
11	9.03	8.90	8.57	8.72	8.60	9.68	7.11	6.17	6.74	---	9.66	9.97
12	9.00	8.99	8.54	8.84	8.18	9.23	6.85	6.33	7.32	---	9.64	9.96
13	8.99	9.07	8.44	8.72	7.84	9.33	7.41	6.52	7.89	---	9.63	9.99
14	8.96	9.08	9.14	8.80	7.71	8.32	7.64	6.59	7.90	---	9.62	9.98
15	8.87	9.22	10.09	8.91	7.70	7.07	7.74	6.69	7.28	---	9.62	9.91
16	8.84	9.29	9.85	8.91	7.55	6.92	7.77	6.64	6.62	---	9.68	9.90
17	8.96	9.26	9.61	9.01	7.42	6.95	7.72	6.44	6.04	---	9.74	9.85
18	9.00	9.25	9.47	9.04	7.40	6.80	7.39	6.45	5.94	---	9.72	9.83
19	9.12	9.21	9.64	8.98	7.81	7.01	7.13	6.49	6.13	9.04	9.76	9.83
20	9.18	9.29	9.90	8.96	7.69	7.13	6.94	6.45	6.57	9.10	9.77	9.87
21	9.14	9.18	9.96	8.96	6.92	7.26	6.74	6.42	7.03	9.21	9.84	9.88
22	9.09	8.96	10.06	8.96	6.66	7.42	6.58	6.42	7.36	9.20	9.99	9.79
23	9.07	8.83	10.00	8.95	6.53	7.41	6.59	6.58	7.21	9.22	10.03	9.83
24	9.03	9.01	9.88	8.98	6.45	7.30	6.52	6.60	7.40	9.29	10.00	9.76
25	9.04	9.20	9.87	9.03	6.55	6.98	6.65	6.76	7.32	9.36	9.99	9.73
26	9.09	9.32	10.05	9.04	6.59	6.84	6.42	6.90	7.11	---	9.95	9.75
27	9.13	9.49	10.10	8.97	6.51	6.41	6.01	7.21	---	---	9.90	9.71
28	9.17	9.50	10.00	8.91	6.42	6.04	6.19	7.19	---	---	9.88	9.68
29	9.17	9.33	9.76	8.99	6.43	5.80	6.32	6.96	---	---	9.83	9.70
30	9.17	8.98	9.64	9.08	---	6.10	6.64	6.74	---	---	9.74	9.71
31	9.16	---	9.56	9.11	---	6.40	---	6.56	---	---	9.73	---
MEAN	9.05	9.14	9.33	9.00	7.73	7.29	6.85	6.64	---	---	---	9.82
MAX	9.18	9.50	10.10	9.54	9.12	9.77	7.77	7.21	---	---	---	9.99
MIN	8.84	8.69	8.44	8.63	6.42	5.80	6.01	6.12	---	---	---	9.68

06467000 LEWIS AND CLARK LAKE NEAR YANKTON, SD

LOCATION.--Lat 42°50'56", long 97°28'54", in SW¼ sec.7, T.33 N., R.1 W., Cedar County, NE, Hydrologic Unit 10170101, in powerhouse of Gavins Point Dam on Missouri River, 3.75 mi southwest of Yankton, 13.6 mi upstream from James River, 32.5 mi downstream from Niobrara River, and at mile 811.0.

DRAINAGE AREA.--279,500 mi^2, approximately.

PERIOD OF RECORD.--July 1955 to current year (monthend contents only). Prior to October 1955, published as Gavins Point Reservoir near Yankton.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Dec. 9, 1955, recorder at temporary location on wall of intake structure unit 3.

REMARKS.--Reservoir is formed by earthfill dam; storage began in July 1955. Maximum capacity, 504,000 acre-ft below elevation 1,210.0 ft (top of spillway gates). Normal maximum, 442,600 acre-ft below elevation 1,208.0 ft. Inactive storage, 157,000 acre-ft below elevation 1,195.0 ft. Dead storage, 23,000 acre-ft below elevation 1,180.0 ft (crest of spillway). Figures given herein represent elevations at powerhouse and total contents adjusted for wind effect.

The spillway consists of 14 taintor gates, each 40 ft wide by 30 ft high; spillway capacity, 280,000 ft^3/s at pool elevation 1,210.0 ft. Crest of spillway is at elevation 1,180.0 ft. Normal releases are through 3 power units, installation completed in January 1957; maximum release through power units is 35,000 ft^3/s at pool elevation, 1,210.0 ft. Water is used for flood control, navigation, power, and incidental uses.

COOPERATION.--Elevations and contents furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 565,000 acre-ft Apr. 1, 1960, affected by wind; minimum since initial filling, 61,950 acre-ft Apr. 23, 1956.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 464,000 acre-ft Nov. 28; minimum, 330,000 acre-ft Mar. 9.

MONTHEND ELEVATION, IN FEET NGVD, AND CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

Date	Elevation	Contents	Change in contents
Sept. 30	1207.85	439000	
Oct. 31	1208.08	444000	+5000
Nov. 30	1208.15	446000	+2000
Dec. 31	1207.90	439000	-7000
CAL YR 1983			+75000
Jan. 31	1208.32	451000	+12000
Feb. 29	1204.89	357000	-94000
Mar. 31	1205.25	367000	+10000
Apr. 30	1205.83	378000	+11000
May 31	1205.66	377000	-1000
June 30	1205.97	387000	+10000
July 31	1207.80	436000	+49000
Aug. 31	1208.04	444000	+8000
Sept. 30	1208.05	444000	0
WTR YR 1984			+5000

06467500 MISSOURI RIVER AT YANKTON, SD

LOCATION.--Lat 42°51'58", long 97°23'37", in SW¼SW¼ sec.18, T.93 N., R.55 W., Yankton County, Hydrologic Unit 10170101, near left bank in downstream end of left pier of Meridian Highway Bridge on U.S. Highway 81, 5.2 mi downstream from Gavins Point Dam, 6.0 mi upstream from James River, and at mile 805.8.

DRAINAGE AREA.--279,500 mi², approximately.

PERIOD OF RECORD.--October 1930 to current year. Monthly discharge only for some periods, published in WSP 1309. Gage-height records collected at same site March 1873 to November 1886, March 1905 to May 1908 (fragmentary), August 1921 to September 1950 (except winter months prior to 1932), are contained in reports of the National Weather Service.

GAGE.--Water-stage recorder. Datum of gage is 1,139.68 ft National Geodetic Vertical Datum of 1929. Prior to Sept. 20, 1932, nonrecording gage, and Sept. 20, 1932, to Mar. 9, 1967, water-stage recorder at present site and at datum 20.0 ft higher.

REMARKS.--Records good except those for winter periods, Dec. 15 to Jan. 25 and Feb. 5-7, which are poor. Flow completely regulated by Lewis and Clark Lake 5.2 mi upstream since July 1955 (see station 06467000). Many diversions for irrigation and water supply above station. U.S. Army Corps of Engineers gage-height telemeter and satellite data-collection platform at station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--54 years, 26,470 ft³/s (19,180,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 480,000 ft³/s Apr. 13, 1952; maximum gage height, 35.5 ft Apr. 13, 14, 1952 (present datum); minimum daily discharge, 2,700 ft³/s Nov. 15, 16, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 50.5 ft Apr. 5, 1881 (ice jam), present datum.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 48,200 ft³/s at 1200 hours, July 28 (gage height, 19.15 ft); maximum gage height, 20.30 ft Dec. 25 (backwater from ice); minimum daily discharge, 10,000 ft³/s June 23-26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39000	37900	37100	20000	17700	19400	16600	17900	22500	17000	45700	47100
2	38900	37900	33700	20000	17500	19500	15900	17800	23700	19400	45800	46900
3	38800	37900	32200	18800	17600	19500	13800	17800	25300	21300	46400	47100
4	39000	37800	29600	18000	17500	19300	12500	18800	26600	22400	47300	47100
5	38900	37600	27800	17500	17500	19400	12300	19200	26700	21400	47300	47300
6	39000	37600	26200	17000	17500	20700	12300	19300	25600	23000	47400	47300
7	38900	37600	24600	17000	17500	18000	12500	19500	24100	24700	47400	47200
8	39000	37600	24300	17000	17600	23200	12500	19400	22500	26900	47400	47000
9	39000	37400	24100	17000	17500	23000	12400	19600	19100	29600	47500	47100
10	39000	37300	24100	17000	17500	23000	12200	19800	16700	32300	47500	47300
11	38800	37400	24100	17000	18000	23200	13500	19800	18400	36200	47500	47500
12	38700	37500	24200	17000	19200	23600	14900	19800	16400	38600	47500	47300
13	38600	37300	24000	17000	19300	22700	15100	19700	12500	41400	47400	47300
14	38800	37100	24000	18000	19400	22300	14900	18600	14700	43900	47500	47600
15	38600	37200	24000	19000	19400	22100	15100	16400	17000	45200	47500	47500
16	38400	37400	24000	20000	19500	23100	15400	19400	16900	45500	47400	47400
17	38400	37300	24000	20000	17200	23000	16200	21300	17300	45400	47400	47500
18	38500	37300	24000	20000	19500	23600	17300	21300	16800	45500	47400	47500
19	38300	37300	24000	20000	19400	24400	18000	21300	15600	45000	47500	47600
20	37200	36700	23000	20000	19500	25200	19200	21300	14000	44300	47500	46500
21	38100	37100	22500	20000	19500	25800	17500	21200	14500	44300	47100	46600
22	38100	37100	22000	20000	17100	26200	15000	21200	12000	44200	47100	46500
23	38200	36900	21500	20000	19300	25800	14900	22000	10000	44300	47200	46500
24	38000	36900	21000	20000	19500	24400	14800	22100	10000	44200	47200	46300
25	38000	37000	20000	20000	19400	22200	15800	22500	10000	45400	47200	46300
26	38100	37000	20000	19800	19500	18100	16700	23200	10000	45700	47200	46500
27	38100	37100	20000	18500	19500	14900	17200	23300	12000	45500	47200	46400
28	38100	36700	20000	18200	19500	13600	18100	20800	14000	46700	47300	46200
29	38000	36700	20000	17600	19500	14500	18500	18500	14000	45900	47200	46400
30	38000	37200	20000	17800	---	16300	18400	19200	14000	45400	47200	46400
31	38000	---	20000	17600	---	16600	---	20900	---	45500	47300	---
TOTAL	1192500	1118800	750000	576800	538600	656600	459500	622900	512900	1166100	1463500	1409200
MEAN	38470	37290	24190	18610	18570	21180	15320	20090	17100	37620	47210	46970
MAX	39000	37900	37100	20000	19500	26200	19200	23300	26700	46700	47500	47600
MIN	37200	36700	20000	17000	17100	13600	12200	16400	10000	17000	45700	46200
AC-FT	236500	2219000	1488000	1144000	1068000	1302000	911400	1236000	1017000	2313000	2903000	2795000

CAL YR 1983 TOTAL 10183060 MEAN 27900 MAX 39100 MIN 6000 AC-FT 20198000
WTR YR 1984 TOTAL 10467400 MEAN 28600 MAX 47600 MIN 10000 AC-FT 20762000

06471000 JAMES RIVER AT COLUMBIA, SD

LOCATION.--Lat 45°36'13", long 98°18'36", in NW¼NW¼ sec.33, T.125 N., R.62 W., Brown County, Hydrologic Unit 10160003, on left bank 20 ft downstream from highway bridge, 0.6 mi south of Columbia, 0.9 mi downstream from Chicago and North Western Transportation Company bridge, 0.3 mi upstream from Elm River, and 12.7 mi downstream from Columbia Road Dam.

DRAINAGE AREA.--5,840 mi^2, approximately, of which about 3,320 mi^2 is probably noncontributing (revised).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1945 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,270 ft, from topographic map. From Oct. 1, 1945, to Oct. 4, 1957, nonrecording gage. From Oct. 5, 1957, to Sept. 30, 1980, water-stage recorder. Both gages described above at site 3.3 mi upstream from present site and at different datum.

REMARKS.--Records good except those for winter periods and/or backwater from Elm River, Nov. 30 to Apr. 8, which are poor. Flow regulated by Arrowwood and Jim Lakes, and Jamestown Reservoir, combined capacity, 246,000 acre-ft, the largest of which is Jamestown Reservoir, capacity, 229,470 acre-ft, 168 mi upstream since May 1953.

AVERAGE DISCHARGE.--39 years, 113 ft^3/s (81,870 acre-ft/yr); median of yearly mean discharges, 70 ft^3/s (50,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,420 ft^3/s May 24, 25, 1950 (gage height, 16.89 ft), from graph based on gage readings; maximum gage height, 17.09 ft Apr. 22, 1969; maximum daily reverse flow, 1,860 ft^3/s Apr. 8, 1952, backwater from Elm River.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,100 ft^3/s at 1700 hours, Apr. 16 (gage height, 14.75 ft); maximum gage height, 15.44 ft Mar. 31 (backwater from Elm River); maximum daily reverse flow, 515 ft^3/s Mar. 29 (backwater from Elm River).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	135	183	150	3.5	3.7	70	285	868	248	257	128	75
2	140	182	150	3.5	4.0	50	390	853	220	255	123	70
3	140	183	150	4.0	4.0	50	455	842	191	259	118	68
4	138	185	150	4.5	4.0	55	520	833	175	251	120	71
5	137	183	140	4.5	4.0	65	595	821	179	241	120	60
6	135	181	120	4.5	5.0	50	665	814	175	234	124	55
7	135	178	50	4.5	10	40	750	814	170	227	129	50
8	131	175	30	4.0	15	35	830	801	191	223	132	44
9	121	175	20	4.0	25	35	869	784	199	222	134	41
10	107	175	10	3.5	35	35	895	769	215	221	133	39
11	100	174	8.0	3.5	35	40	936	754	222	220	132	37
12	99	172	6.0	3.5	35	40	953	729	231	217	131	35
13	98	172	4.5	3.5	40	40	1000	717	245	214	130	32
14	95	170	4.0	3.5	40	40	1050	695	269	213	127	30
15	95	169	3.5	3.2	40	40	1060	670	295	210	119	29
16	96	169	3.5	3.2	40	40	1080	641	319	206	115	28
17	97	156	3.0	3.2	35	45	1060	624	332	202	112	29
18	100	164	2.5	3.2	35	45	1060	595	340	199	108	30
19	105	163	2.5	3.0	35	50	1050	550	342	195	104	31
20	115	160	2.5	3.0	35	60	1020	517	339	191	101	31
21	126	160	2.3	3.5	40	70	1020	491	333	187	99	30
22	161	162	2.2	3.5	45	90	997	467	334	183	97	30
23	173	161	2.0	4.0	42	100	979	441	347	178	94	30
24	182	162	2.0	4.0	100	150	965	411	343	173	90	29
25	183	164	2.2	3.8	150	200	931	382	336	170	89	29
26	183	164	2.5	4.0	140	300	945	357	317	169	88	29
27	184	164	2.5	4.0	100	-100	965	339	303	167	90	29
28	185	163	2.3	4.0	90	-320	953	327	287	164	87	29
29	184	159	2.3	4.0	80	-515	911	315	272	159	84	30
30	183	150	2.5	3.7	---	-380	906	297	257	147	80	30
31	183	---	3.0	3.7	---	-15	---	271	---	137	78	---
TOTAL	4246	5088	1035.8	115.5	1266.7	505	26085	18789	8026	6291	3416	1180
MEAN	137	170	33.4	3.73	43.7	16.3	870	606	268	203	110	39.3
MAX	185	185	150	4.5	150	300	1080	868	347	259	134	75
MIN	95	150	2.0	3.0	3.7	-515	285	271	170	137	78	28
AC-FT	842	10090	2050	229	2510	1000	51740	37270	15920	12480	6780	2340

CAL YR 1983 TOTAL 77382 MEAN 212 MAX 851 MIN -600 AC-FT 153500
WTR YR 1984 TOTAL 76044 MEAN 208 MAX 1080 MIN -515 AC-FT 150800

06471000 JAMES RIVER AT COLUMBIA, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1949-64, 1967 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1966 to September 1981.
WATER TEMPERATURES: October 1966 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,500 micromhos Mar. 1, 1974, Jan. 27-29, Jan. 31, 1979; minimum daily, 240 micromhos Mar. 17, 1972.
WATER TEMPERATURES: Maximum daily, 32.0°C June 29, July 10, 1970; minimum daily, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE, AIR (DEG C)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
NOV 22...	1545	162	710	8.0	-5.0	1.0	5.5	731	--	--	--	--
JAN 25...	1250	3.8	1250	7.6	-3.0	.0	17	727	--	--	920	1100
MAR 22...	1230	90	1240	8.0	5.0	.0	4.9	735	8.3	59	K20	330
MAY 21...	1230	491	620	8.0	16.0	17.0	3.8	725	--	--	84	K43
JUL 03...	0935	258	655	7.1	20.5	23.5	1.5	736	2.9	35	110	340
SEP 26...	1450	29	735	7.8	8.5	7.5	5.5	744	13.5	116	170	K33

DATE	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
NOV 22...	250	14	54	29	53	30	1	16	241	110	18	.20
JAN 25...	510	40	110	57	100	29	2	26	470	220	37	.30
MAR 22...	480	9	100	55	94	29	2	23	468	210	38	.30
MAY 21...	220	12	50	23	44	29	1	11	208	92	19	.20
JUL 03...	230	4	50	25	52	32	2	14	224	96	18	.20
SEP 26...	240	0	50	29	69	36	2	16	296	92	22	.20

DATE	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)	PHOSPHORUS, DISSOLVED (MG/L AS P)
NOV 22...	13	454	440	.62	199	.37	.150	.17	1.5	.070	.21	.040
JAN 25...	23	649	860	.88	6.7	.24	.900	1.2	2.6	.380	1.2	.380
MAR 22...	17	839	820	1.1	204	.11	.580	.75	2.1	.210	.64	.110
MAY 21...	3.4	381	370	.52	505	<.10	.070	.09	1.3	.180	.55	.170
JUL 03...	17	406	410	.55	283	<.10	<.010	--	1.1	.310	--	.290
SEP 26...	18	500	480	.68	39	.26	.320	.41	1.7	.380	--	.390

< Less than.
K Non-ideal colony count.

06471000 JAMES RIVER AT COLUMBIA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
NOV												
22...	.010	<10	2	84	<.5	<1	<1	<3	1	11	1	45
JAN												
25...	.300	--	--	--	--	--	--	--	--	--	--	--
MAR												
22...	.080	10	2	150	<.5	<1	<1	<3	4	30	<1	72
MAY												
21...	.070	<10	2	62	<1.0	<1	<1	<3	2	18	7	35
JUL												
03...	.240	--	--	--	--	--	--	--	--	--	--	--
SEP												
26...	.310	<10	4	69	<1.0	<1	<1	<3	6	33	3	52

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV												
22...	23	.2	<10	5	<1	<1	260	<6	9	--	--	--
JAN												
25...	--	--	--	--	--	--	--	--	--	222	2.3	36
MAR												
22...	1100	<.1	<10	2	<1	<1	490	<6	30	112	27	27
MAY												
21...	100	<.1	<10	1	<1	<1	230	<6	9	--	--	--
JUL												
03...	--	--	--	--	--	--	--	--	--	--	--	--
SEP												
26...	380	<.1	<10	1	<1	<1	250	<6	3	--	--	--

< Less than.

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06471200 MAPLE RIVER AT NORTH DAKOTA-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 45°56'20", long 98°27'08", in SW¼SE¼ sec.33, T.129 N., R.62 W., Dickey County, ND, Hydrologic Unit 10160004, on left bank 0.4 mi upstream from State line, 7.8 mi northeast of Frederick, SD, and 15.7 mi upstream from mouth.

DRAINAGE AREA.--750 mi^2, approximately, of which about 270 mi^2 is probably noncontributing.

PERIOD OF RECORD.--June 1956 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,365 ft, from topographic map. Prior to June 14, 1962, nonrecording gage at site 0.4 mi downstream at datum 0.94 ft lower.

REMARKS.--Records good except those for winter period, Feb. 16 to Mar. 30, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--28 years, 20.5 ft^3/s (14,850 acre-ft/yr); median of yearly mean discharges, 12 ft^3/s (8,690 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,930 ft^3/s Apr. 11, 1969; maximum gage height, 16.05 ft Apr. 11, 1969 (backwater from ice); no flow for long periods in each year.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 50 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 29	--	150	ice jam	Mar. 27	2230	*1600	*a10.57

a Ice jam.
No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	90	541	24	3.4	3.8	.00	.00
2	.00	.00	.00	.00	.00	50	506	23	2.8	2.8	.00	.00
3	.00	.00	.00	.00	.00	40	403	26	2.0	2.0	.00	.00
4	.00	.00	.00	.00	.00	30	304	34	2.8	1.5	.01	.00
5	.00	.00	.00	.00	.00	25	240	38	3.2	1.6	.07	.00
6	.00	.00	.00	.00	.00	20	170	37	3.8	1.6	.06	.00
7	.00	.00	.00	.00	.00	17	126	33	4.0	1.2	.05	.00
8	.00	.00	.00	.00	.00	15	104	29	4.4	.91	.01	.00
9	.00	.00	.00	.00	.00	13	88	25	4.1	.74	.00	.00
10	.00	.00	.00	.00	.00	10	77	24	4.7	.74	.00	.00
11	.00	.00	.00	.00	.00	7.0	72	23	4.9	.71	.00	.00
12	.00	.00	.00	.00	.00	6.0	73	21	6.4	.61	.00	.00
13	.00	.00	.00	.00	.00	4.5	73	21	6.1	.52	.00	.00
14	.00	.00	.00	.00	.00	4.0	67	19	5.5	.50	.00	.00
15	.00	.00	.00	.00	.00	3.5	65	17	5.6	.47	.00	.00
16	.00	.00	.00	.00	.00	3.5	72	15	5.6	.43	.00	.00
17	.00	.00	.00	.00	.00	3.5	80	15	5.3	.36	.00	.00
18	.00	.00	.00	.00	.00	3.6	75	14	4.6	.29	.00	.00
19	.00	.00	.00	.00	.00	3.6	64	13	4.9	.26	.00	.00
20	.00	.00	.00	.00	.05	3.7	52	11	5.4	.21	.00	.00
21	.00	.00	.00	.00	1.0	3.7	45	11	6.1	.15	.00	.00
22	.00	.00	.00	.00	5.1	4.0	40	9.7	8.6	.13	.00	.00
23	.00	.00	.00	.00	6.0	10	34	7.8	9.0	.10	.00	.00
24	.00	.00	.00	.00	3.5	40	31	7.9	8.4	.09	.00	.00
25	.00	.00	.00	.00	2.0	100	28	7.3	8.1	.10	.00	.00
26	.00	.00	.00	.00	1.2	500	28	6.4	7.7	.12	.00	.00
27	.00	.00	.00	.00	.90	1350	30	5.8	6.9	.11	.00	.00
28	.00	.00	.00	.00	10	1420	29	5.3	6.2	.08	.00	.00
29	.00	.00	.00	.00	100	910	27	4.7	4.6	.04	.00	.00
30	.00	.00	.00	.00	---	570	25	3.9	3.0	.00	.00	.00
31	.00	---	.00	.00	---	523	---	3.4	---	.00	.00	---
TOTAL	.00	.00	.00	.00	129.75	5783.6	3569	535.2	[illegible]	22.17	.20	.00
MEAN	.00	.00	.00	.00	4.47	187	119	17.3	[illegible]	.72	.01	.00
MAX	.00	.00	.00	.00	100	1420	541	38	9.0	3.8	.07	.00
MIN	.00	.00	.00	.00	.00	3.5	25	3.4	2.0	.00	.00	.00
AC-FT	.0	.00	.00	.00	257	11470	7080	1060	314	44	.4	.00

CAL YR 1983 TOTAL 8156.77 MEAN 22.3 MAX 700 MIN .00 AC-FT 16180
WTR YR 1984 TOTAL 10198.02 MEAN 27.9 MAX 1420 MIN .00 AC-FT 20230

06471500 ELM RIVER AT WESTPORT, SD

LOCATION.--Lat 45°39'22", long 98°29'48", in SW¼NW¼ sec.12, T.125 N., R.64 W., Brown County, Hydrologic Unit 10160004, on right bank 12 ft downstream from highway bridge, 0.5 mi north of Westport, 0.7 mi upstream from Chicago, Milwaukee, St. Paul and Pacific Railroad bridge, 9.3 mi downstream from Willow Creek, and 30.4 mi upstream from mouth.

DRAINAGE AREA.--1,680 mi^2, approximately, of which about 510 mi^2 is probably noncontributing.

PERIOD OF RECORD.--October 1945 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,309.3 ft National Geodetic Vertical Datum of 1929. Prior to Aug. 6, 1951, and Apr. 8 to Sept. 9, 1952, nonrecording gage 12 ft upstream at same datum. Aug. 6, 1951, to Apr. 7, 1952, water-stage recorder at present site and datum.

REMARKS.--Records good except those for winter period, Jan. 5 to Mar. 30, which are poor. Flow regulated for Aberdeen municipal water supply by Elm Lake and other small reservoirs upstream, combined capacity, about 16,000 acre-ft. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--39 years, 46.7 ft^3/s (33,830 acre-ft/yr); median of yearly mean discharges, 28 ft^3/s (20,300 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,600 ft^3/s Apr. 10, 1969 (gage height, 22.11 ft); no flow for many days in most years prior to 1960.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 23	--	160	ice jam	Mar. 29	0600	*1650	*a11.94
Mar. 3	--	160	ice jam				

a Ice jam.
Minimum daily discharge, 0.20 ft^3/s Aug. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.5	6.7	5.3	4.2	4.8	12	708	60	7.3	18	.44	5.1
2	7.0	6.7	5.2	4.4	5.0	35	731	56	6.5	22	.29	5.9
3	7.0	6.9	5.3	4.5	5.0	150	672	53	6.0	23	.20	6.7
4	7.0	6.6	5.5	4.9	4.7	130	546	54	8.0	17	.45	6.1
5	6.5	6.7	5.5	5.5	4.5	100	445	65	6.9	13	1.5	6.3
6	6.5	4.0	5.5	6.0	4.5	80	375	70	7.4	10	2.2	7.1
7	6.8	3.0	5.1	5.5	5.0	60	301	68	6.1	8.6	2.5	7.9
8	7.0	4.0	5.0	5.5	5.5	45	250	59	6.8	11	2.2	7.1
9	7.5	5.2	4.9	5.3	6.0	35	211	54	5.9	11	1.7	6.8
10	7.0	5.5	4.8	5.0	6.0	30	183	53	6.6	9.2	1.5	7.3
11	6.5	5.8	4.7	5.0	6.0	25	166	48	5.3	7.9	1.6	6.8
12	6.5	6.8	4.6	4.5	5.8	22	165	45	6.9	7.4	1.6	9.1
13	7.0	7.0	4.8	4.5	5.8	18	163	40	7.0	7.5	1.7	7.9
14	7.0	6.7	5.0	4.3	6.4	16	170	40	7.1	7.0	1.6	7.7
15	7.5	6.5	4.7	4.5	6.0	15	174	37	8.1	6.1	2.0	7.7
16	7.0	6.4	4.2	4.7	6.0	14	174	38	15	5.2	1.9	8.2
17	6.5	6.4	3.8	4.5	6.2	13	169	35	70	4.3	2.2	9.2
18	6.0	6.8	3.6	4.3	6.5	12	161	31	37	4.0	2.1	11
19	6.5	6.6	3.2	4.0	7.0	12	154	31	26	3.9	1.9	6.4
20	7.0	6.8	3.1	3.5	15	12	139	30	24	3.6	1.9	6.3
21	6.5	5.3	3.6	4.0	40	13	118	26	27	3.6	2.4	9.2
22	6.5	5.1	3.9	4.0	140	16	101	23	30	4.0	2.1	12
23	6.0	5.4	3.4	4.5	160	40	94	23	29	2.5	2.0	7.4
24	6.0	5.5	3.1	5.0	100	150	86	20	30	2.1	3.2	7.7
25	6.0	5.6	2.9	4.8	55	200	74	12	29	1.8	4.5	6.9
26	6.1	5.6	3.4	4.3	40	250	76	13	25	1.6	5.2	6.7
27	6.4	5.3	4.4	4.5	25	800	85	11	21	1.6	5.5	6.5
28	6.7	5.5	4.6	4.5	19	1560	79	10	21	1.2	4.8	6.6
29	5.8	6.1	4.5	4.7	15	1480	73	9.9	18	.94	4.9	7.1
30	6.1	5.6	4.3	4.7	---	1260	67	9.5	14	.63	4.8	7.8
31	6.7	---	4.2	4.8	---	776	---	9.9	---	.49	4.5	---
TOTAL	206.1	176.1	136.1	144.4	715.7	7381	6910	1134.3	517.9	220.16	75.38	224.5
MEAN	6.65	5.87	4.39	4.66	24.7	238	230	36.6	17.3	7.10	2.43	7.48
MAX	7.5	7.0	5.5	6.0	160	1560	731	70	70	23	5.5	12
MIN	5.8	3.0	2.9	3.5	4.5	12	67	9.5	5.3	.49	.20	5.1
AC-FT	40	349	270	286	1420	14640	13710	2250	1030	437	150	445

CAL YR 1983 TOTAL 13389.44 MEAN 36.7 MAX 850 MIN .86 AC-FT 26560
WTR YR 1984 TOTAL 17841.64 MEAN 48.7 MAX 1560 MIN .20 AC-FT 35390

06473000 JAMES RIVER AT ASHTON, SD

LOCATION.--Lat 44°59'54", long 98°28'50", in NW¼NW¼NE¼ sec.36, T.118 N., R.64 W., Spink County, Hydrologic Unit 10160006, on right bank at downstream side of highway bridge, 0.9 mi east of Ashton, 6.1 mi upstream from Snake Creek, and 14.2 mi upstream from Turtle Creek.

DRAINAGE AREA.--9,800 mi², approximately, of which about 4,510 mi² is probably noncontributing (revised).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1945 to current year.

REVISED RECORDS.--WSP 1209: 1947.

GAGE.--Water-stage recorder. Datum of gage is 1,244.4 ft National Geodetic Vertical Datum of 1929. Prior to Nov. 26, 1957, nonrecording gage at present site and Nov. 26, 1957, to Oct. 7, 1974, water-stage recorder at site 900 ft upstream all at present datum.

REMARKS.--Records good except those for winter period, Dec. 2 to Apr. 1, which are poor. Low flow regulated by Arrowwood and Jim Lakes, and Jamestown Reservoir, combined capacity, 246,000 acre-ft, the largest of which is Jamestown Reservoir, capacity, 229,470 acre-ft, 285 mi upstream since May 1953. Occasional backwater and reverse flow caused by Snake Creek during most years. Several observations of specific conductance were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE.--39 years, 163 ft³/s (118,100 acre-ft/yr); median of yearly mean discharges, 110 ft³/s (79,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,680 ft³/s Apr. 24, 1969 (gage height, 20.63 ft); maximum gage height, 21.17 ft Apr. 13, 1969 (backwater from Snake Creek); maximum daily reverse flow, 2,100 ft³/s Apr. 9, 1969 (backwater from Snake Creek).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,170 ft³/s at 1715 hours, May 6 (gage height, 11.47 ft); minimum daily discharge, 5.5 ft³/s Jan. 27, 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	128	166	174	18	5.7	70	400	1150	646	600	188	79
2	129	169	170	17	6.0	80	455	1150	617	595	184	78
3	130	176	170	17	6.0	95	509	1160	596	601	202	75
4	135	180	165	16	6.0	110	586	1160	578	604	191	72
5	133	182	165	15	6.0	130	638	1160	564	601	175	70
6	134	184	165	15	6.2	160	673	1170	547	594	161	69
7	135	185	160	14	6.5	180	705	1160	532	580	152	66
8	137	187	155	14	6.5	190	743	1150	515	562	144	64
9	138	191	150	14	6.7	190	779	1150	492	539	136	62
10	139	192	150	13	7.0	180	815	1140	488	519	130	58
11	137	191	140	13	7.5	160	852	1130	484	495	125	55
12	135	193	130	12	8.0	150	901	1120	486	471	120	55
13	132	195	115	12	8.5	140	936	1110	480	446	115	52
14	128	197	100	11	9.0	130	967	1100	523	429	110	50
15	128	197	85	11	10	120	998	1080	552	416	107	46
16	124	198	75	10	15	110	1020	1070	611	398	105	42
17	121	198	65	9.5	20	100	1050	1050	646	378	103	40
18	117	197	55	9.0	25	95	1070	1030	646	358	100	38
19	116	197	45	8.0	30	90	1090	1000	636	339	96	34
20	115	197	40	7.5	40	80	1100	977	609	325	104	30
21	113	197	37	7.0	50	80	1110	946	614	311	127	31
22	111	195	34	6.5	65	85	1110	917	631	296	132	32
23	113	199	31	6.5	75	90	1120	887	635	281	117	30
24	113	196	29	6.0	79	100	1120	855	628	267	104	29
25	115	200	26	6.0	77	130	1120	824	613	255	97	26
26	118	196	24	5.8	75	150	1130	795	597	245	92	26
27	126	194	23	5.5	73	160	1140	774	589	235	88	27
28	133	197	22	5.5	72	180	1130	754	602	223	85	27
29	142	188	21	5.7	70	215	1140	726	614	213	84	27
30	152	178	20	5.7	---	250	1140	699	609	203	83	28
31	160	---	19	5.7	---	300	---	673	---	195	80	---
TOTAL	3987	5712	2760	321.9	871.6	4300	27547	31067	17380	12574	3837	1418
MEAN	129	190	89.0	10.4	30.1	139	918	1002	579	406	124	47.3
MAX	160	200	174	18	79	300	1140	1170	646	604	202	79
MIN	111	166	19	5.5	5.7	70	400	673	480	195	80	26
AC-FT	791	11330	5470	638	1730	8530	54640	61620	34470	24940	7610	2810

CAL YR 1983 TOTAL 93490.2 MEAN 256 MAX 826 MIN 3.0 AC-FT 185400
WTR YR 1984 TOTAL 111775.5 MEAN 305 MAX 1170 MIN 5.5 AC-FT 221700

BEST COPY AVAILABLE

06473000 JAMES RIVER AT ASHTON, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1977 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1977 to current year.

REMARKS.--Temperatures collected once daily by observer.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum observed daily, 30.0°C July 19-21, Aug. 3, 5, 6, 1983; minimum daily, 0.0°C on several days during 1978-80, 1983, 1984.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum observed daily, 28.0°C Aug. 8, 13; minimum observed daily, 0.0°C Nov. 25, 26, 28-30, Dec. 1-3, 22, Jan. 26, Mar. 20.

TEMPERATURE, WATER (DEG C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.0	9.0	.0	---	---	---	---	8.0	19.0	---	27.0	23.0
2	---	9.0	.0	---	---	---	---	9.0	19.0	26.0	27.5	---
3	15.0	9.0	.0	---	---	---	---	9.0	---	26.0	26.0	---
4	14.0	9.0	---	---	---	---	4.0	9.0	20.0	---	27.0	20.0
5	14.0	9.0	---	---	---	---	---	10.0	21.0	25.0	---	19.0
6	13.0	---	---	---	---	---	10.0	---	21.0	24.0	27.0	19.0
7	12.0	9.0	---	---	---	---	8.0	10.0	20.5	24.0	27.0	18.0
8	11.0	7.0	---	---	---	---	---	11.0	20.0	---	28.0	18.0
9	---	7.0	---	---	---	---	8.0	12.0	20.0	27.0	26.0	---
10	---	6.0	---	---	---	---	9.0	13.0	---	26.0	27.0	17.0
11	11.0	---	---	---	---	---	8.0	14.0	19.0	27.0	26.0	17.0
12	11.0	2.0	---	---	---	---	8.0	14.0	19.0	27.0	---	18.0
13	10.0	2.0	---	---	---	---	7.0	---	20.0	26.0	28.0	18.0
14	10.0	2.0	---	---	---	---	8.0	17.0	19.0	26.0	27.0	18.0
15	9.0	2.0	---	---	---	---	---	17.0	20.0	---	26.0	17.0
16	---	2.0	---	---	---	---	11.0	18.0	22.0	26.0	26.0	---
17	8.0	3.0	---	---	---	---	11.0	18.0	---	26.0	27.0	17.0
18	8.0	3.0	---	---	---	---	12.0	20.0	24.0	25.0	27.0	20.0
19	9.0	3.0	---	---	---	---	12.5	20.0	25.0	25.0	---	21.0
20	9.0	---	---	---	---	.0	13.0	---	26.0	26.0	24.0	19.0
21	9.0	2.0	---	---	---	---	14.0	20.0	24.0	26.0	24.0	19.0
22	10.0	1.0	.0	---	---	---	---	19.0	24.0	---	23.0	18.0
23	---	1.0	---	---	---	---	15.0	19.0	24.0	27.0	23.0	---
24	10.0	---	---	---	.5	---	14.0	18.0	---	26.0	22.0	12.0
25	9.0	.0	---	---	---	---	13.0	16.0	25.0	25.0	23.0	8.0
26	10.0	.0	---	.0	---	---	11.0	17.0	25.0	25.0	---	8.0
27	9.0	---	---	---	---	---	11.0	---	25.0	26.0	27.0	8.0
28	9.0	.0	---	---	---	---	8.0	---	26.0	---	25.5	8.0
29	8.0	.0	---	---	---	1.5	---	17.0	25.0	---	25.0	8.0
30	---	.0	---	---	---	---	8.0	17.0	25.0	26.0	22.0	---
31	9.0	---	---	---	---	---	---	19.0	---	27.0	22.0	---

06475000 JAMES RIVER NEAR REDFIELD, SD

LOCATION.--Lat 44°54'33", long 98°27'34", in NW¼NE¼ sec.31, T.117 N., R.63 W., Spink County, Hydrologic Unit 10160006, on right bank 0.6 mi downstream from county highway bridge, 3.3 mi northeast of Redfield and 1.3 mi downstream from Turtle Creek.

DRAINAGE AREA.--13,600 mi^2, approximately, of which about 4,920 mi^2 is probably noncontributing (revised).

PERIOD OF RECORD.--March 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,239.50 ft (revised) National Geodetic Vertical Datum of 1929. From March 1950 to July 25, 1951, nonrecording gage. From July 26, 1951, to Sept. 30, 1981, water-stage recorder. Both gages described above at site 3.9 mi downstream from present site and at different datum.

REMARKS.--Records good except those for winter period, Nov. 28 to Apr. 2, which are poor. Low flow regulated by Arrowwood and Jamestown Reservoir, combined capacity, 246,000 acre-ft, the largest of which is Jamestown Reservoir, capacity, 229,470 acre-ft, 303 mi upstream since May 1953. Low flow affected by wind at times. Flow below 100 ft^3/s for water years 1964-79 may be unreliable because of wind effect. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--34 years, 193 ft^3/s (139,800 acre-ft/yr); median of yearly mean discharges, 130 ft^3/s (94,200 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,310 ft^3/s Apr. 13, 1969 (gage height, 24.93 ft); no flow for many days in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,600 ft^3/s at 1915 hours, June 28 (gage height, 9.67 ft); minimum daily discharge, 4.8 ft^3/s Jan. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	138	163	180	18	5.5	75	400	1480	584	1240	177	88
2	131	167	180	18	6.0	75	500	1490	560	1110	171	87
3	132	174	175	17	6.0	85	588	1510	545	1060	214	86
4	135	177	175	17	6.0	100	654	1510	533	996	222	83
5	139	181	175	16	6.0	120	700	1510	519	925	196	81
6	138	180	170	16	6.0	150	747	1530	509	866	178	79
7	139	183	170	15	6.0	180	790	1500	495	812	166	77
8	139	183	165	15	6.0	200	830	1480	487	760	153	73
9	144	183	165	14	6.0	205	881	1470	465	706	139	71
10	146	184	160	14	6.5	200	934	1460	455	669	129	70
11	140	187	155	13	7.0	185	1000	1430	454	630	123	66
12	137	191	145	13	7.5	170	1070	1410	458	598	116	68
13	136	194	130	12	8.0	160	1130	1370	454	567	107	68
14	130	194	115	11	8.5	150	1180	1340	496	533	101	66
15	131	194	100	11	9.5	140	1230	1330	576	505	100	63
16	128	194	85	10	12	130	1300	1320	724	478	98	58
17	123	194	70	10	15	120	1350	1260	839	450	97	53
18	120	194	65	9.5	20	115	1390	1200	853	422	94	50
19	117	194	55	8.5	25	105	1430	1140	838	396	90	47
20	114	194	45	8.0	35	100	1460	1070	788	373	94	44
21	112	193	40	7.5	45	100	1450	1010	821	355	133	39
22	111	193	38	7.0	55	105	1470	963	934	335	144	39
23	108	188	35	6.5	65	115	1480	918	1010	313	143	37
24	111	196	32	6.0	80	130	1480	879	1040	295	130	37
25	109	194	30	5.5	90	140	1480	822	1030	278	117	34
26	112	195	27	5.0	90	160	1510	775	996	261	110	31
27	119	197	25	4.8	85	180	1490	741	1190	247	102	31
28	125	185	22	5.0	85	210	1460	710	1510	232	97	29
29	135	185	20	5.0	80	250	1480	678	1560	219	94	29
30	148	185	19	5.5	---	300	1480	647	1410	206	91	28
31	157	---	18	5.5	---	350	---	619	---	190	91	---
TOTAL	4004	5616	2986	329.3	882.5	4805	34344	36572	23133	17027	4017	1712
MEAN	129	187	96.3	10.6	30.4	155	1145	1180	771	549	130	57.1
MAX	157	197	180	18	90	350	1510	1530	1560	1240	222	88
MIN	108	163	18	4.8	5.5	75	400	619	454	190	90	28
AC-FT	794	11140	5920	653	1750	9530	68120	72540	45880	33770	7970	3400

CAL YR 1983 TOTAL 95918.4 MEAN 263 MAX 888 MIN 3.0 AC-FT 190300
WTR YR 1984 TOTAL 135427.8 MEAN 370 MAX 1560 MIN 4.8 AC-FT 268600

06476000 JAMES RIVER AT HURON, SD

LOCATION.--Lat 44°21'49", long 98°11'56", in SW¼SE¼NE¼ sec.6, T.110 N., R.61 W., Beadle County, Hydrologic Unit 10160006, on right bank 15 ft upstream from city dam at Huron, 135 ft downstream from Chicago and North Western Transportation Co. bridge and 165 ft upstream from bridge on business loop U.S. Highway 14.

DRAINAGE AREA.--15,600 mi^2, approximately, of which about 5,110 mi^2 is probably noncontributing (revised).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1928 to September 1932, August 1943 to current year. Monthly discharge only for some periods, published in WSP 1309. Gage-height records collected at site about 100 ft downstream for period of open water each year July 1902 to June 1914 and for period March to June 1915-23 are in reports of the National Weather Service.

GAGE.--Water-stage recorder and concrete dam. Datum of gage is 1,223.44 ft National Geodetic Vertical Datum of 1929. Aug. 29, 1928, to Mar. 15, 1929, nonrecording gage at site 100 ft downstream at about same datum. Mar. 16, 1929, to June 30, 1932, nonrecording gage 165 ft downstream at present datum. Aug. 3, 1943, to Oct. 17, 1951, nonrecording gage at site 15 ft downstream at present datum.

REMARKS.--Records good above 100 ft^3/s and fair below. Low flow regulated by Arrowwood and Jim Lakes, and Jamestown Reservoir, combined capacity, 246,000 acre-ft, the largest of which is Jamestown Reservoir, capacity 229,470 acre-ft, 365 mi upstream since May 1953.

AVERAGE DISCHARGE.--45 years, 235 ft^3/s (170,300 acre-ft/yr); median of yearly mean discharges, 140 ft^3/s (101,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,000 ft^3/s Apr. 13, 1969 (gage height, 16.70 ft); no flow for long periods in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood between Apr. 11 and 13, 1881, reached a stage of 19.8 ft, from U.S. Weather Bureau publication. Flood of Mar. 22, 1922, reached a stage of 16.5 ft.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,310 ft^3/s at 1400 hours, June 22 (gage height, 13.18 ft); minimum daily discharge, 22 ft^3/s Jan. 27.

Rating table (gage height, in feet, and discharge, in cubic feet per second)

8.80	6.8	9.2	147	9.80	680	12.00	2650
9.00	62	9.40	292	10.50	1520	13.20	3320

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	129	117	137	50	32	348	668	1140	814	1480	253	106
2	126	126	137	47	30	325	772	1150	546	1390	234	106
3	127	129	138	44	32	311	832	1180	491	1400	254	103
4	121	117	138	42	34	305	806	1190	565	1360	251	101
5	124	135	138	40	34	285	786	1180	641	1290	275	93
6	120	145	140	39	34	284	777	1200	682	1200	276	91
7	123	148	140	38	34	324	815	1240	672	1080	281	95
8	115	164	140	39	34	337	850	1180	732	1040	267	96
9	98	175	140	38	33	343	859	1140	708	1020	244	99
10	107	166	140	37	34	328	878	1160	674	970	220	97
11	121	160	145	37	36	253	916	1170	611	906	184	96
12	126	148	149	36	39	249	1130	1130	595	831	168	94
13	120	165	153	34	41	229	1210	1170	590	771	147	93
14	120	180	147	34	43	207	1240	1120	595	766	137	96
15	113	174	143	33	51	237	1200	1040	630	731	138	92
16	121	167	138	32	68	246	1160	1020	862	675	126	79
17	112	164	132	31	86	258	1150	1150	1200	641	132	82
18	118	171	126	30	100	246	1160	1150	1290	587	123	82
19	123	183	120	29	103	231	1160	1280	1300	559	111	79
20	119	179	110	27	120	211	1160	1150	2410	534	110	77
21	116	178	105	26	136	192	1180	1120	3100	485	120	48
22	120	176	100	26	163	186	1190	1080	3290	472	117	73
23	109	171	98	25	307	215	1160	980	2600	454	102	82
24	118	165	95	23	468	283	1190	985	2330	428	99	74
25	109	161	86	24	575	346	1180	981	2140	407	108	70
26	112	152	78	24	600	404	1170	914	2070	393	117	64
27	112	148	70	22	494	433	1180	924	1970	363	122	67
28	116	156	66	24	416	423	1220	924	1870	322	120	62
29	107	145	64	30	387	464	1170	850	1650	283	118	59
30	106	140	59	31	---	519	1170	775	1530	260	113	58
31	106	---	55	32	---	583	---	761	---	264	112	---
TOTAL	3614	4705	3627	1024	4564	9605	31339	33434	39158	23362	5179	2514
MEAN	117	157	117	33.0	157	310	1045	1079	1305	754	167	83.8
MAX	129	183	153	50	600	583	1240	1280	3290	1480	281	106
MIN	98	117	55	22	30	186	668	761	491	260	99	48
AC-FT	717	9330	7190	2030	9050	19050	62160	66320	77670	46340	10270	4990

CAL YR 1983 TOTAL 90632 MEAN 248 MAX 887 MIN 20 AC-FT 179800
WTR YR 1984 TOTAL 162125 MEAN 443 MAX 3290 MIN 22 AC-FT 321600

06476000 JAMES RIVER AT HURON, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1949-52, 1956 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: September 1956 to October 1970, September 1971 to current year.
WATER TEMPERATURES: September 1956 to October 1970, September 1971 to current year.

REMARKS.--Samples collected once daily by observer.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,170 micromhos Mar. 14, 1965; minimum daily, 175 micromhos Mar. 30, Apr. 2, 1960.
WATER TEMPERATURES: Maximum daily, 31.0°C June 2, 1968; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum observed daily, 1,340 micromhos Feb. 10; minimum observed daily, 480 micromhos Apr. 6-8.
WATER TEMPERATURES: Maximum observed daily, 27.0°C Aug. 6-8; minimum observed daily, 0.0°C on many days during winter flow period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE, AIR (DEG C)	TEMPERATURE (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)
OCT										
21...	1035	121	730	8.3	9.5	9.0	230	0	46	28
NOV										
30...	1500	137	830	8.9	-4.5	.5	280	13	59	32
DEC										
08...	1430	197	830	7.9	-9.0	.0	300	22	64	34
JAN										
05...	1330	41	1080	8.1	6.0	.0	360	23	80	40
FEB										
28...	1415	394	800	7.5	-2.0	.0	260	32	58	29
MAR										
26...	1430	412	640	7.7	5.5	.5	210	61	46	22
APR										
30...	1500	1100	570	8.4	11.0	9.0	180	13	42	19
MAY										
31...	1045	745	680	8.5	20.5	18.0	220	51	50	23
JUN										
29...	0800	1750	780	7.9	20.0	24.5	230	54	50	25
JUL										
31...	1140	285	980	8.2	33.5	25.5	280	25	58	33
AUG										
24...	1345	80	960	8.4	27.0	23.0	310	21	64	36
SEP										
17...	1410	69	1020	8.6	28.5	16.5	310	8	64	37

DATE	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
OCT									
21...	57	33	2	18	268	93	23	.20	20
NOV									
30...	64	32	2	17	266	140	26	.20	14
DEC									
08...	68	32	2	16	278	140	25	.20	13
JAN									
05...	80	31	2	18	342	200	36	.30	14
FEB									
28...	61	32	2	15	233	150	34	.20	15
MAR									
26...	47	31	1	17	145	160	22	.10	13
APR									
30...	46	33	2	13	170	97	21	.20	6.8
MAY									
31...	49	31	1	14	169	110	--	.20	5.7
JUN									
29...	69	38	2	16	174	180	32	.10	21
JUL									
31...	87	39	2	16	256	190	43	.20	23
AUG									
24...	96	39	2	20	287	180	44	.20	24
SEP									
17...	100	39	3	20	305	180	48	.30	20

06476000 JAMES RIVER AT HURON, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	BORON, DIS-SOLVED (UG/L AS B)
OCT 21...	450	.61	146	<.10	.290	.240	.180	.55	190
NOV 30...	510	.70	189	<.10	.140	.080	.060	.18	150
DEC 08...	530	.72	280	<.10	.110	.080	.060	.18	170
JAN 05...	670	.92	75	.33	.140	.120	.120	.37	200
FEB 28...	500	.68	535	.55	.610	.460	.340	1.0	150
MAR 26...	420	.57	462	.40	.620	.550	.510	1.6	120
APR 30...	350	.47	1030	<.10	.210	.170	.120	.37	110
MAY 31...	--	--	--	<.10	.290	.170	.080	.25	120
JUN 29...	500	.68	2360	<.10	.720	.550	.640	2.0	200
JUL 31...	610	.82	466	.12	.620	.440	.380	1.2	260
AUG 24...	640	.87	138	<.10	.580	.460	.390	1.2	240
SEP 17...	650	.89	122	<.10	.420	.230	.210	.64	250

< Less than.

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	680	760	800	1040	1230	710	580	560	640	860	910	960
2	680	770	800	1020	1180	770	580	560	650	860	930	950
3	690	760	800	1040	1160	770	---	540	650	870	940	950
4	700	780	800	1040	1220	770	580	540	670	900	930	950
5	700	780	800	1060	1280	---	580	510	680	900	930	950
6	700	770	800	1060	1240	770	480	530	690	870	930	960
7	700	780	800	1060	1270	580	480	530	690	850	920	960
8	700	770	830	1060	1200	580	480	530	730	850	930	960
9	710	760	---	1050	1280	560	620	520	770	860	940	960
10	710	770	830	1080	1340	560	610	510	770	850	940	960
11	720	750	820	1080	1160	560	640	530	770	860	940	980
12	730	750	820	1100	1300	560	640	530	770	860	940	980
13	740	760	850	1110	---	560	640	520	800	870	940	990
14	730	770	850	1120	---	510	640	530	800	880	950	1000
15	720	750	850	1130	---	510	620	550	780	880	950	980
16	720	760	870	1130	---	510	610	540	890	880	950	1000
17	720	780	860	1140	---	510	550	550	890	890	960	990
18	720	770	870	1140	---	510	520	550	850	900	940	1000
19	730	760	870	1160	---	490	540	550	550	900	940	1000
20	740	600	900	1160	---	490	560	560	520	900	950	1000
21	740	760	900	1180	---	490	560	570	530	880	950	990
22	730	770	920	1160	910	580	640	590	530	890	930	990
23	730	770	930	1170	900	580	650	610	530	900	940	990
24	730	760	940	1220	910	580	670	630	550	910	950	980
25	730	780	930	1220	920	640	680	630	750	910	950	990
26	730	770	980	1240	920	640	670	640	760	910	960	990
27	730	780	960	1240	710	640	640	650	770	920	970	1000
28	740	800	1000	1220	710	640	640	680	---	910	990	990
29	740	790	1000	1220	710	650	640	670	750	910	990	990
30	750	800	1010	1230	---	580	570	680	820	910	990	990
31	740	---	1010	1240	---	580	---	680	---	910	970	---

06476000 JAMES RIVER AT HURON, SD--Continued

TEMPERATURE, WATER (DEG C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.0	8.0	.0	.0	.0	.0	.0	8.0	18.0	26.0	25.0	22.0
2	12.0	9.0	.0	.0	.0	.0	.0	9.0	17.0	25.0	25.0	20.0
3	13.0	9.0	.0	.0	.0	.0	.0	9.0	18.0	25.0	25.0	20.0
4	13.0	9.0	.0	.0	.0	.0	.0	9.0	18.0	25.0	25.0	19.0
5	13.0	9.0	.0	.0	.0	.0	3.0	9.0	19.0	25.0	25.0	18.0
6	13.0	9.0	.0	.0	.0	.0	3.0	9.0	20.0	23.0	27.0	18.0
7	13.0	8.0	.0	.0	.0	.0	5.0	10.0	20.0	24.0	27.0	18.0
8	13.0	8.0	.0	.0	.0	.0	6.0	10.0	18.0	25.0	27.0	17.0
9	13.0	7.0	.0	.0	.0	.0	6.0	10.0	18.0	25.0	26.0	17.0
10	13.0	5.0	.0	.0	.0	.0	7.0	11.0	19.0	25.0	25.0	17.0
11	12.0	4.0	.0	.0	.0	.0	8.0	11.0	18.0	25.0	25.0	15.0
12	11.0	4.0	.0	.0	.0	.0	8.0	11.0	17.0	25.0	26.0	16.0
13	9.0	4.0	.0	.0	.0	.0	8.0	12.0	19.0	25.0	26.0	17.0
14	8.0	3.0	.0	.0	.0	.0	7.0	14.0	20.0	25.0	26.0	16.0
15	8.0	3.0	.0	.0	.0	.0	8.0	15.0	20.0	25.0	25.0	15.0
16	9.0	3.0	.0	.0	.0	.0	9.0	15.0	19.0	25.0	25.0	16.0
17	7.0	2.0	.0	.0	.0	.0	9.0	17.0	19.0	25.0	24.0	13.0
18	7.0	2.0	.0	.0	.0	.0	10.0	17.0	23.0	25.0	24.0	14.0
19	8.0	2.0	.0	.0	.0	.0	11.0	16.0	23.0	25.0	23.0	14.0
20	8.0	2.0	.0	.0	.0	.0	11.0	17.0	23.0	25.0	23.0	15.0
21	9.0	2.0	.0	.0	.0	.0	11.0	18.0	22.0	25.0	23.0	15.0
22	9.0	2.0	.0	.0	.0	.0	11.0	17.0	22.0	25.0	21.0	15.0
23	9.0	1.0	.0	.0	.0	.0	11.0	17.0	23.0	25.0	21.0	13.0
24	10.0	1.0	.0	.0	.0	.0	12.0	18.0	23.0	25.0	21.0	13.0
25	9.0	.0	.0	.0	.0	.0	12.0	15.0	23.0	25.0	21.0	8.0
26	9.0	.0	.0	.0	.0	.0	12.0	16.0	24.0	23.0	20.0	7.0
27	9.0	.0	.0	.0	.0	.0	12.0	15.0	25.0	24.0	23.0	6.0
28	9.0	.0	.0	.0	.0	.0	10.0	15.0	25.0	25.0	22.0	6.0
29	8.0	.0	.0	.0	.0	.0	9.0	15.0	26.0	25.0	23.0	6.0
30	8.0	.0	.0	.0	---	.0	7.0	17.0	26.0	25.0	22.0	6.0
31	8.0	---	.0	.0	---	.0	---	17.0	---	25.0	22.0	---

06476500 SAND CREEK NEAR ALPENA, SD

LOCATION.--Lat 44°09'15", long 98°26'06", in NE¼NE¼ sec.19, T.108 N., R.63 W., Jerauld County, Hydrologic Unit 10160006, on left bank 5 ft downstream from highway bridge, 4.0 mi southwest of Alpena, 7.0 mi upstream from Chicago, Milwaukee, St. Paul and Pacific Railroad bridge, and 10.5 mi upstream from interlink with Cain Creek.

DRAINAGE AREA.--240 mi^2, approximately.

PERIOD OF RECORD.--March 1950 to current year.

REVISED RECORDS.--WSP 1309: 1950(M).

GAGE.--Water-stage recorder. Altitude of gage is 1,315 ft. Prior to Sept. 17, 1951, nonrecording gage at same site and datum.

REMARKS.--Records good. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--34 years, 8.34 ft^3/s (6,040 acre-ft/yr); median of yearly mean discharges, 4.6 ft^3/s (3,300 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,240 ft^3/s Mar. 28, 1960 (gage height, 13.35 ft); maximum gage height, 14.1 ft Mar. 28, 1950 (backwater from ice); no flow for many days in each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 24	1530	176	10.19	June 6	0100	75	9.28
Mar. 22	--	210	a10.41	June 10	0230	240	10.57
Apr. 13	2215	130	9.83	June 24	1745	*281	*10.81

a Backwater from ice.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	24	14	4.9	2.2	37	.61	.04
2	.00	.00	.00	.00	.00	18	12	4.9	2.0	29	.48	.03
3	.00	.00	.00	.00	.00	14	12	4.6	2.0	23	.57	.00
4	.00	.00	.00	.00	.00	10	11	4.5	2.5	19	.64	.00
5	.00	.00	.00	.00	.00	8.0	9.4	4.3	6.4	16	.49	.00
6	.00	.00	.00	.00	.00	6.6	8.5	4.4	42	14	.34	.00
7	.00	.00	.00	.00	.00	6.0	7.8	3.7	19	12	.43	.00
8	.00	.00	.00	.00	.00	5.8	8.2	3.7	43	10	.49	.00
9	.00	.00	.00	.00	.00	5.6	8.6	3.7	203	9.0	.28	.00
10	.00	.00	.00	.00	.00	5.4	7.9	3.6	206	8.8	.19	.00
11	.00	.00	.00	.00	.00	5.1	8.1	3.3	150	7.0	.15	.00
12	.00	.00	.00	.00	.14	5.0	19	3.2	113	6.0	.07	.00
13	.00	.00	.00	.00	.25	4.8	68	3.1	94	5.7	.06	.00
14	.00	.00	.00	.00	.40	4.7	114	3.0	82	5.5	.02	.00
15	.00	.00	.00	.00	.70	8.0	96	2.9	69	5.2	.00	.00
16	.00	.00	.00	.00	1.1	12	65	2.8	55	5.0	.00	.00
17	.00	.00	.00	.00	2.0	20	42	2.6	45	5.0	.15	.00
18	.00	.00	.00	.00	3.5	30	30	2.4	37	3.8	.20	.00
19	.00	.00	.00	.00	5.5	50	22	2.3	31	2.5	.14	.00
20	.00	.00	.00	.00	9.0	80	17	2.1	29	1.8	.22	.00
21	.00	.00	.00	.00	16	110	13	1.9	31	1.6	.47	.00
22	.00	.00	.00	.00	25	170	11	1.8	36	1.5	.41	.00
23	.00	.00	.00	.00	45	146	9.0	1.6	112	1.4	.41	.00
24	.00	.00	.00	.00	75	112	7.3	1.6	226	1.3	.40	.00
25	.00	.00	.00	.00	123	78	6.5	1.4	205	1.1	.33	.00
26	.00	.00	.00	.00	120	53	6.4	1.2	150	1.7	.28	.00
27	.00	.00	.00	.00	71	40	6.2	2.3	110	1.5	.22	.00
28	.00	.00	.00	.00	41	32	5.6	3.0	85	1.1	.15	.00
29	.00	.00	.00	.00	29	27	5.5	2.5	64	1.3	.10	.00
30	.00	.00	.00	.00	---	22	5.2	2.3	50	1.3	.08	.00
31	.00	---	.00	.00	---	18	---	2.3	---	.98	.05	---
TOTAL	.00	.00	.00	.00	567.59	1131.0	656.2	91.9	2302.1	240.08	8.43	.07
MEAN	.00	.00	.00	.00	19.6	36.5	21.9	2.96	76.7	7.74	.27	.00
MAX	.00	.00	.00	.00	123	170	114	4.9	226	37	.64	.04
MIN	.00	.00	.00	.00	.00	4.7	5.2	1.2	2.0	.98	.00	.00
AC-FT	.0	.00	.00	.00	1130	2240	1300	182	4570	476	17	.1

CAL YR 1983	TOTAL	902.48	MEAN	2.47	MAX	38	MIN	.00	AC-FT	1790
WTR YR 1984	TOTAL	4997.37	MEAN	13.7	MAX	226	MIN	.00	AC-FT	9910

06477000 JAMES RIVER NEAR FORESTBURG, SD

LOCATION.--Lat 43°58'26", long 98°04'14", in SW¼SW¼NW¼ sec.20, T.106 N., R.60 W., Sanborn County, Hydrologic Unit 10160011, on right bank 5.0 ft downstream from highway bridge, 3.8 mi southeast of Forestburg, 5.4 mi downstream from Chicago, Milwaukee, St. Paul and Pacific Railroad bridge, and 6.1 mi downstream from Sand Creek.

DRAINAGE AREA.--17,400 mi², approximately, of which about 5,110 mi² is probably noncontributing (revised).

PERIOD OF RECORD.--March 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,208.34 ft National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark). Prior to Sept. 5, 1951, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter period, Nov. 24 to Mar. 28, which are poor. Low flow regulated by Arrowwood and Jim Lakes, and Jamestown Reservoir, combined capacity, 246,000 acre-ft, the largest of which is Jamestown Reservoir, capacity, 229,470 acre-ft, 408 mi upstream since May 1953. Several observations of water temperature and specific conductance were made during the year. Gage-height telemeter at station.

AVERAGE DISCHARGE.--34 years, 280 ft³/s (202,900 acre-ft/yr); median of yearly mean discharges, 150 ft³/s (108,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,500 ft³/s Apr. 9, 1969 (gage height, 17.16 ft); no flow at times in 1950, 1955, 1959, 1961, 1970, 1976, 1977, 1981, 1982.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in March 1920 and March 1922 reached a stage of about 18 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,140 ft³/s at 0500 hours, June 25 (gage height, 15.75 ft); minimum daily discharge, 17 ft³/s Feb. 1-5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	141	97	140	50	17	800	1200	1310	850	3550	315	128
2	141	104	135	48	17	850	1100	1280	700	3200	301	125
3	136	111	135	43	17	700	1070	1270	600	2850	294	118
4	135	115	135	41	17	550	1080	1260	650	2600	311	110
5	133	120	140	39	17	450	1050	1260	750	2380	315	110
6	126	127	140	37	18	400	999	1260	800	2170	308	107
7	120	135	140	37	18	350	957	1260	900	1950	324	98
8	118	146	140	37	18	340	947	1270	850	1730	342	97
9	114	168	140	37	19	330	954	1260	800	1530	355	96
10	111	181	140	36	20	320	958	1220	750	1400	353	95
11	108	178	145	35	21	310	969	1180	750	1280	326	97
12	112	173	145	35	22	290	1100	1170	800	1170	302	103
13	120	168	145	33	24	280	1400	1130	900	1070	277	113
14	126	171	145	33	27	280	1610	1120	1060	980	249	114
15	124	181	145	32	30	270	1750	1110	1130	914	229	112
16	126	181	135	31	33	270	1820	1100	1300	856	214	110
17	129	176	130	30	37	270	1820	1080	1680	803	204	102
18	133	176	125	29	44	270	1760	1060	2000	747	200	97
19	136	178	115	28	50	270	1680	1070	2340	692	188	92
20	143	183	110	27	65	270	1590	1120	2710	645	168	82
21	143	184	105	26	85	280	1520	1120	3120	615	172	73
22	139	188	100	26	100	290	1460	1080	3780	582	187	65
23	139	186	95	23	130	290	1420	1040	5020	550	174	64
24	133	178	90	23	150	320	1380	977	5940	516	153	67
25	127	170	85	22	200	400	1350	940	6030	483	135	72
26	115	160	80	21	250	500	1350	910	5650	475	130	74
27	108	155	70	20	350	900	1340	910	5200	457	131	66
28	109	155	65	19	550	1500	1340	910	4720	428	137	62
29	108	145	62	18	650	1430	1340	887	4280	394	139	61
30	103	140	60	18	---	1270	1320	850	3880	360	135	58
31	98	---	55	18	---	1220	---	800	---	333	132	---
TOTAL	3854	4730	3592	952	2996	16270	39634	34214	69940	37710	7200	2768
MEAN	124	158	116	30.7	103	525	1321	1104	2331	1216	232	92.3
MAX	143	188	145	50	650	1500	1820	1310	6030	3550	355	128
MIN	98	97	55	18	17	270	947	800	600	333	130	58
AC-FT	764	9380	7120	1890	5940	32270	78610	67860	138700	74800	14280	5490

CAL YR 1983 TOTAL 97683 MEAN 268 MAX 923 MIN 15 AC-FT 193800
WTR YR 1984 TOTAL 223860 MEAN 612 MAX 6030 MIN 17 AC-FT 444000

BEST COPY AVAILABLE

06477500 FIRESTEEL CREEK NEAR MOUNT VERNON, SD

LOCATION.--Lat 43°46'30", long 98°14'33", in SW¼SW¼ sec.26, T.104 N., R.62 W., Davison County, Hydrologic Unit 10160011, near center of span on downstream side of highway bridge, 4.5 mi north of Mount Vernon, 5.2 mi downstream from West Firesteel Creek, and 12 mi northwest of Mitchell.

DRAINAGE AREA.--540 mi^2, approximately.

PERIOD OF RECORD.--September 1955 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,297.22 ft National Geodetic Vertical Datum of 1929. Prior to Nov. 28, 1972, nonrecording gage and crest-stage gage.

REMARKS.--Records good except those for winter periods, Nov. 30 to Dec. 6, Dec. 21 to Jan. 3, Jan. 11-24, and Feb. 16 to Mar. 24, which are fair. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--29 years, 22.8 ft^3/s (16,520 acre-ft/yr); median of yearly mean discharges, 8.9 ft^3/s (6,400 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,610 ft^3/s Apr. 4, 1969 (gage height, 15.34 ft); maximum gage height, 17.12 ft Apr. 3, 1969 (backwater from ice); no flow for many days in most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 28	2345	380	a6.92	June 9	2000	379	6.69
Mar. 18	0945	310	a6.92	June 15	1715	1120	9.36
Mar. 24	0315	700	a8.76	June 20	0700	2260	12.08
Apr. 5	0915	197	5.35	June 21	2215	*5080	*15.56
Apr. 14	1830	1620	9.83				

a Backwater from ice.
Minimum daily discharge, 0.05 ft^3/s Nov. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.10	.09	.22	.22	.71	200	124	40	18	157	8.6	.89
2	.10	.09	.24	.22	.84	130	104	38	20	138	7.7	.91
3	.10	.07	.25	.23	.93	100	102	35	20	121	6.9	.89
4	.10	.06	.26	.23	1.0	70	152	35	19	107	7.7	.86
5	.10	.06	.27	.26	.91	50	195	33	19	95	11	.86
6	.09	.06	.27	.30	1.0	34	180	31	19	84	9.5	.82
7	.09	.05	.25	.32	.96	33	140	29	17	74	8.3	.82
8	.08	.07	.25	.32	.87	32	122	28	137	66	7.4	.92
9	.08	.18	.23	.32	.82	30	110	29	344	58	7.2	.88
10	.08	.18	.23	.29	.77	32	107	29	340	55	7.6	.82
11	.08	.16	.23	.29	.75	30	108	24	271	61	7.0	.93
12	.08	.16	.23	.28	.75	27	305	21	231	51	7.0	.98
13	.08	.17	.23	.27	.75	26	1130	21	198	40	7.2	.83
14	.08	.19	.22	.26	.78	35	1540	18	202	35	6.9	.70
15	.07	.20	.19	.26	.98	70	1420	16	829	31	5.7	.70
16	.07	.19	.20	.26	2.2	80	1010	14	917	28	5.0	.65
17	.07	.18	.20	.26	5.0	200	648	11	881	24	5.2	.64
18	.07	.18	.20	.26	3.0	300	351	9.6	883	22	4.9	.53
19	.09	.19	.20	.26	2.0	280	197	8.8	607	20	4.0	.43
20	.09	.25	.20	.26	1.5	200	141	7.8	1790	18	3.5	.31
21	.07	.29	.20	.27	1.4	170	112	7.0	3620	18	4.1	.23
22	.06	.31	.20	.28	1.6	280	90	7.0	4200	16	4.0	.19
23	.06	.34	.20	.29	2.0	600	77	7.0	2900	15	3.2	.11
24	.06	.36	.20	.30	4.0	640	65	6.5	1790	14	2.4	.10
25	.08	.36	.20	.32	5.5	574	50	6.2	1340	13	1.5	.14
26	.08	.32	.21	.32	140	449	40	6.2	904	12	1.4	.46
27	.09	.34	.21	.32	300	336	44	9.3	508	12	1.4	1.3
28	.08	.32	.21	.34	340	243	44	14	315	12	1.1	1.3
29	.09	.19	.21	.48	300	187	43	16	239	11	.83	1.3
30	.08	.22	.21	.64	---	149	42	19	189	9.9	.84	1.4
31	.09	---	.21	.64	---	129	---	18	---	8.9	.94	---
TOTAL	2.54	5.83	6.83	9.57	1121.02	5716	8793	594.4	23767	1426.8	160.01	21.90
MEAN	.08	.19	.22	.31	38.7	184	293	19.2	792	46.0	5.16	.73
MAX	.10	.36	.27	.64	340	640	1540	40	4200	157	11	1.4
MIN	.06	.05	.19	.22	.71	26	40	6.2	17	8.9	.83	.10
AC-FT	5.	12	14	19	2220	11340	17440	1180	47140	2830	317	43

CAL YR 1983 TOTAL 3452.16 MEAN 9.46 MAX 170 MIN .01 AC-FT 6850
WTR YR 1984 TOTAL 41624.90 MEAN 114 MAX 4200 MIN .05 AC-FT 82560

06478052 ENEMY CREEK NEAR MITCHELL, SD

LOCATION.--Lat 43°38'33", long 97°59'09", in NW¼NW¼ sec.13, T.102 N., R.60 W., Davison County, Hydrologic Unit 10160011, on left bank 3 ft downstream from highway bridge, 4.5 mi southeast of Mitchell, and 7.3 mi above mouth.

DRAINAGE AREA.--181 mi^2, approximately.

PERIOD OF RECORD.--October 1975 to current year.

REVISED RECORDS.--WDR SD-78-1: 1977.

GAGE.--Water-stage recorder. Altitude of gage is 1,280 ft, from topographic map.

REMARKS.--Records good. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--9 years, 12.8 ft^3/s (9,270 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,280 ft^3/s June 22, 1984 (gage height, 15.15 ft); no flow for many days in each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 20 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 17	1930	26	6.00	Apr. 30	1845	212	7.23
Feb. 27	1600	68	6.41	May 29	1800	103	6.52
Feb. 29	1545	53	6.27	June 6	1845	134	6.75
Mar. 17	1700	118	6.80	June 13	0900	98	6.48
Mar. 24	1200	260	7.62	June 17	0700	425	8.34
Apr. 4	1345	412	8.32	June 18	1415	653	9.33
Apr. 13	1230	2170	12.94	June 22	0800	*4280	*15.15
Apr. 27	1700	136	6.77				

No flow Oct. 1-22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.06	.20	.21	.71	23	52	166	32	109	5.7	.58
2	.00	.08	.16	.24	.64	21	46	121	26	95	5.1	.54
3	.00	.11	.18	.25	.72	17	129	111	23	81	5.6	.54
4	.00	.07	.27	.29	.70	15	374	103	22	69	6.9	.49
5	.00	.06	.32	.40	.75	11	248	85	48	61	7.8	.39
6	.00	.08	.31	.37	.54	8.5	147	74	114	56	8.2	.38
7	.00	.08	.28	.29	.48	8.0	97	65	115	49	7.4	.37
8	.00	.13	.29	.25	.49	8.0	100	53	90	44	6.8	.41
9	.00	.19	.30	.21	.64	8.0	107	43	64	38	5.2	.43
10	.00	.12	.27	.16	.83	8.0	91	37	61	34	4.0	.42
11	.00	.08	.24	.15	.99	8.0	96	32	71	32	3.3	.51
12	.00	.09	.21	.15	1.5	7.7	545	29	93	30	3.0	.80
13	.00	.13	.16	.15	1.3	7.9	1880	25	85	26	2.5	1.1
14	.00	.14	.16	.15	1.5	11	1600	21	91	23	1.8	1.1
15	.00	.13	.16	.15	1.6	13	820	20	140	21	1.6	.66
16	.00	.12	.17	.15	2.0	36	316	17	205	20	1.5	.43
17	.00	.12	.18	.15	16	90	205	16	313	18	1.9	.35
18	.00	.12	.17	.15	21	80	153	15	526	16	2.0	.54
19	.00	.28	.17	.14	15	60	118	15	370	15	2.1	.45
20	.00	.26	.17	.12	5.8	45	94	14	721	13	2.4	.28
21	.00	.24	.17	.12	3.2	55	75	13	2760	13	3.7	.16
22	.00	.29	.17	.15	3.2	90	69	12	3750	12	3.9	.14
23	.01	.24	.16	.15	9.5	144	66	11	2140	9.7	3.9	.16
24	.01	.17	.14	.16	17	205	57	11	1310	8.5	2.9	.20
25	.01	.16	.14	.21	29	200	45	9.4	867	8.0	2.4	.37
26	.03	.17	.15	.22	32	168	55	8.6	583	7.9	2.3	.31
27	.04	.20	.20	.22	43	135	103	13	355	7.7	1.9	.18
28	.03	.20	.20	.38	39	138	107	50	214	7.6	1.4	.23
29	.04	.20	.20	.62	27	111	84	85	166	7.5	1.0	.27
30	.02	.18	.20	.56	---	84	163	73	134	6.8	.76	.21
31	.04	---	.20	.58	---	63	---	48	---	6.2	.72	---
TOTAL	.23	4.50	6.30	7.50	276.09	1879.1	8042	1396.0	15489	944.9	109.68	13.00
MEAN	.01	.15	.20	.24	9.52	60.6	268	45.0	516	30.5	3.54	.43
MAX	.04	.29	.32	.62	43	205	1880	166	3750	109	8.2	1.1
MIN	.00	.06	.14	.12	.48	7.7	45	8.6	22	6.2	.72	.14
AC-FT	.	8.9	12	15	548	3730	15950	2770	30720	1870	218	26

CAL YR 1983 TOTAL 7075.27 MEAN 19.4 MAX 425 MIN .00 AC-FT 14030
WTR YR 1984 TOTAL 28168.30 MEAN 77.0 MAX 3750 MIN .00 AC-FT 55870

06478390 WOLF CREEK NEAR CLAYTON, SD

LOCATION.--Lat 43°22'18", long 97°36'12", in NW¼NE¼ sec.29, T.99 N., R.57 W., Hutchinson County, Hydrologic Unit 10160011, on right bank 10 ft downstream from highway bridge, 4.1 mi upstream from mouth and 5.6 mi southeast of Clayton.

DRAINAGE AREA.--386 mi², approximately.

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder to Sept. 30, 1981. Nonrecording gage Oct. 1-30, 1981. Water-stage recorder Oct. 31, 1981, to current year. Altitude of gage is 1,210 ft, from topographic map. Oct. 1, 1975, to July 29, 1980, recording gage 50 ft upstream at different datum.

REMARKS.--Records good except those for winter period, Nov. 23 to Mar. 24, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--9 years, 38.6 ft³/s (27,970 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,520 ft³/s June 21, 1984 (gage height, 18.01 ft); no flow at times in 1976, 1977, 1980-82.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 175 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 30	0815	846	10.90	May 7	1330	238	7.20
Apr. 4	0045	1180	11.92	June 12	1645	578	9.19
Apr. 12	1945	3260	15.95	June 21	1600	*6520	*18.01
Apr. 30	1030	445	8.52	July 9	1615	441	8.17

Minimum daily discharge, 2.2 ft³/s Oct. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	4.7	6.3	5.0	5.0	20	454	289	42	178	40	7.2
2	2.4	5.0	6.3	5.0	5.0	15	382	216	40	153	40	7.2
3	2.6	4.8	6.3	5.0	5.0	15	742	192	37	125	35	7.2
4	2.8	3.3	6.3	5.5	5.0	15	915	171	37	104	35	7.2
5	2.8	3.6	6.3	6.0	5.0	15	545	150	37	89	30	7.2
6	3.0	3.6	6.3	6.0	4.5	15	392	137	49	78	30	7.2
7	2.8	3.7	6.0	6.0	4.5	14	289	209	95	68	35	7.4
8	2.4	3.2	6.0	5.0	4.5	14	255	183	103	60	27	8.3
9	2.6	5.1	6.0	4.5	5.0	14	223	139	111	98	26	8.3
10	2.6	5.2	6.0	4.5	5.0	14	178	113	232	96	23	8.3
11	2.6	4.4	6.0	4.5	8.0	14	407	102	319	86	22	8.5
12	2.5	4.6	6.0	4.5	10	14	2560	88	559	71	22	8.7
13	2.4	4.9	6.0	4.5	15	14	2830	75	501	77	20	8.5
14	2.4	5.2	6.0	4.5	20	14	2070	66	448	75	18	7.9
15	2.2	4.9	6.0	4.0	15	15	1630	60	849	70	17	7.9
16	2.5	4.7	5.5	4.0	15	15	1180	53	1300	70	17	7.8
17	3.0	4.6	5.0	4.0	15	15	857	47	1510	65	19	7.3
18	3.2	4.8	5.0	4.0	15	15	593	44	1800	65	19	7.3
19	4.5	13	5.0	4.0	15	16	411	42	2090	65	17	7.1
20	4.8	15	5.0	4.0	20	18	292	40	2350	60	16	6.9
21	5.0	10	5.0	4.0	25	30	217	38	3360	60	17	6.5
22	4.3	8.9	5.0	4.0	30	50	185	37	4420	60	14	5.8
23	4.3	8.5	5.0	4.0	30	100	157	36	2680	55	13	5.8
24	3.8	8.0	5.0	4.0	30	200	124	35	1760	55	12	5.8
25	4.0	7.5	5.0	4.5	30	350	102	33	1210	50	11	6.1
26	4.2	6.5	5.0	4.5	25	571	91	32	871	60	10	6.5
27	4.2	6.5	5.0	5.0	20	472	106	45	610	55	9.6	6.5
28	4.0	6.5	5.0	5.0	20	516	97	78	441	50	9.3	6.5
29	4.0	6.5	5.0	5.0	20	677	110	77	316	50	8.6	6.6
30	4.3	6.3	5.0	5.0	---	768	379	59	231	45	8.3	6.8
31	4.5	---	5.0	5.0	---	632	---	48	---	45	7.8	---
TOTAL	103.1	183.5	172.3	144.5	426.5	4667	18773	2934	28407	2338	628.6	216.3
MEAN	3.33	6.12	5.56	4.66	14.7	151	626	94.6	947	75.4	20.3	7.21
MAX	5.0	15	6.3	6.0	30	768	2830	289	4420	178	40	8.7
MIN	2.2	3.2	5.0	4.0	4.5	14	91	32	37	45	7.8	5.8
AC-FT	20	364	342	287	846	9260	37240	5820	56350	4640	1250	429

CAL YR 1983 TOTAL 28475.3 MEAN 78.0 MAX 1710 MIN 1.8 AC-FT 56480
WTR YR 1984 TOTAL 58993.8 MEAN 161 MAX 4420 MIN 2.2 AC-FT 117000

06478500 JAMES RIVER NEAR SCOTLAND, SD

LOCATION.--Lat 43°11'09", long 97°38'07", in SW¼SW¼ sec.30, T.97 N., R.57 W., Hutchinson County, Hydrologic Unit 10160011, on right bank 5.0 ft downstream from highway bridge, 0.3 mi upstream from Dawson Creek and 5.2 mi northeast of Scotland.

DRAINAGE AREA.--20,300 mi², approximately, of which about 5,110 mi² is probably noncontributing (revised).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1928 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 786: Drainage area. WSP 956: 1937-38. WSP 1279: 1932, 1948.

GAGE.--Water-stage recorder and rock and earth control. Datum of gage is 1,168.07 ft National Geodetic Vertical Datum of 1929. Prior to Nov. 28, 1972, at site 0.25 mi downstream at present datum.

REMARKS.--Records good except those for winter periods, Nov. 26 to Dec. 3, Dec. 19 to Jan. 4, Jan. 19-24, and Mar. 1-27, which are poor. Low flow regulated by Arrowwood and Jim Lakes, and Jamestown Reservoir, combined capacity, 246,000 acre-ft, the largest of which is Jamestown Reservoir, capacity, 229,470 acre-ft, 527 mi upstream since May 1953. Occasional backwater caused by Dawson Creek; reverse flow occurred for part of May 15, 1961, from information by local residents. National Weather Service gage-height telemeter and Corps of Engineers satellite data-collection platform at station.

AVERAGE DISCHARGE.--56 years, 396 ft³/s (286,900 acre-ft/yr); median of yearly mean discharges, 200 ft³/s (145,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,400 ft³/s June 23, 1984 (gage height, 20.45 ft); no flow for many days in some years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 29,400 ft³/s June 23 (gage height, 20.45 ft); minimum daily discharge, 60 ft³/s Jan. 27, 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	167	126	190	130	63	350	3370	3720	1470	8400	694	181
2	158	126	200	128	65	400	3220	3700	1320	7220	764	181
3	163	126	200	125	67	500	3360	3380	1170	6360	667	181
4	167	120	199	122	68	600	4040	3160	1070	5850	600	177
5	167	111	204	119	72	700	4270	2950	1090	5360	574	177
6	163	109	213	116	67	800	4150	2840	1050	5010	587	163
7	154	116	224	112	64	900	3950	3220	1420	4720	554	154
8	150	123	230	110	64	950	3710	3040	1790	4590	542	167
9	145	142	230	111	63	1000	3390	2700	1850	4280	542	163
10	133	156	221	108	63	1000	3170	2440	2270	4060	523	158
11	130	163	208	105	69	900	3120	2320	2300	4010	517	158
12	133	163	192	96	81	750	4930	2180	4200	3830	493	141
13	137	166	188	91	86	650	8990	2020	5500	3490	517	141
14	133	190	186	90	92	590	11500	1860	5000	3240	511	141
15	126	209	190	85	107	550	11400	1740	4000	3060	481	141
16	126	210	187	78	147	550	9780	1650	3810	2830	453	133
17	130	206	176	77	210	550	8320	1560	3900	2680	447	137
18	126	202	173	73	247	550	7070	1480	4290	2560	425	133
19	126	240	170	68	203	550	6070	1420	4280	2300	420	150
20	130	303	170	66	155	550	5410	1370	5420	2030	375	158
21	141	309	160	64	182	600	4900	1310	11600	1730	345	163
22	145	294	160	64	212	750	4630	1290	25600	1460	339	133
23	154	281	160	63	232	1000	4370	1270	27600	1190	339	122
24	154	210	160	62	243	1250	4030	1240	23500	1030	333	137
25	158	201	160	62	243	1700	3720	1230	19800	942	300	145
26	164	200	160	61	246	2600	3380	1210	16100	1010	277	130
27	163	180	150	60	266	3300	3140	1250	13800	900	256	115
28	158	123	150	60	285	3700	2950	1440	12000	845	249	122
29	154	130	150	64	318	3540	2810	1660	10700	796	230	122
30	143	160	140	63	---	3480	2950	1700	9650	749	202	130
31	131	---	140	63	---	3460	---	1620	---	726	207	---
TOTAL	4529	5395	5641	2696	4280	38770	150100	63970	227550	97258	13763	4454
MEAN	146	180	182	87.0	148	1251	5003	2064	7585	3137	444	148
MAX	167	309	230	130	318	3700	11500	3720	27600	8400	764	181
MIN	126	109	140	60	63	350	2810	1210	1050	726	202	115
AC-FT	898	10700	11190	5350	8490	76900	297700	126900	451300	192900	27300	8830

CAL YR 1983 TOTAL 247593 MEAN 678 MAX 3450 MIN 62 AC-FT 491100
WTR YR 1984 TOTAL 618406 MEAN 1690 MAX 27600 MIN 60 AC-FT 1227000

06478500 JAMES RIVER NEAR SCOTLAND, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1956-64, 1967-73, 1975 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to Sept. 30, 1981.
WATER TEMPERATURES: January 1953 to September 1969, October 1974 to Sept. 30, 1983.
SUSPENDED SEDIMENT DISCHARGE: Oct. 1, 1981, to Sept. 30, 1983.

REMARKS.--Prior to October 1969, continuous temperature thermograph at station.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,660 micromhos Jan. 9, 1977; minimum daily, 300 micromhos Mar. 19, 1977.
WATER TEMPERATURES: Maximum, 32.0°C Aug. 1, 2, 1957; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 953 mg/L June 21, 1983; minimum daily mean, 12 mg/L Nov. 8, 1982.
SEDIMENT LOADS: Maximum daily, 5,890 tons June 21, 1983; minimum daily, 1.7 tons Oct. 2, 11, 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE, AIR (DEG C)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
NOV												
16...	1010	213	1240	8.4	3.0	4.0	7.5	737	13.5	107	110	520
FEB												
15...	1200	105	1650	7.7	6.0	.0	4.9	732	--	--	190	<4
MAY												
16...	1200	1600	920	8.5	30.0	20.0	31	733	--	--	K100	1600
AUG												
16...	1040	465	1300	8.2	26.5	26.5	24	737	8.6	111	--	--

DATE	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
NOV												
16...	490	200	110	51	95	29	2	15	286	370	52	.40
FEB												
15...	880	540	210	85	95	19	1	16	337	640	38	.40
MAY												
16...	360	163	83	36	55	24	1	12	193	260	26	.20
AUG												
16...	490	206	110	51	100	30	2	18	280	390	47	.30

DATE	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)	PHOSPHORUS, DISSOLVED (MG/L AS P)
NOV												
16...	18	893	880	1.2	514	.10	.100	.13	2.2	.210	.64	.100
FEB												
15...	21	1380	1300	1.9	391	1.1	.510	.66	1.3	.250	.77	.200
MAY												
16...	3.3	631	590	.86	2730	.25	.110	.14	1.6	.410	1.3	.170
AUG												
16...	9.7	902	900	1.2	1130	<.10	.060	.08	2.2	.280	--	.080

< Less than.
K Non-ideal colony count.

06478500 JAMES RIVER NEAR SCOTLAND, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)
NOV												
16...	.090	<10	4	58	<.5	1	<1	<3	<1	9	<1	95
FEB												
15...	.150	10	2	61	<.5	<1	<1	<3	3	25	<1	140
MAY												
16...	.060	10	3	55	<.5	<1	<1	<3	4	9	<1	58
AUG												
16...	.030	<10	5	83	<1.0	<1	7	<3	2	<3	3	91

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV												
26...	110	<.1	<10	5	1	<1	880	<6	17	--	--	--
FEB												
15...	1100	.1	<10	<1	1	<1	1700	<6	10	111	31	50
MAY												
16...	49	.4	<10	9	1	<1	530	<6	30	212	916	83
AUG												
16...	590	.2	<10	6	<1	<1	870	8	3	112	141	99

< Less than.

06478513 JAMES RIVER NEAR YANKTON, SD

LOCATION.--Lat 42°59'45", long 97°22'10", in NE¼NW¼ sec.5, T.94 N., R.55 W., Yankton County, Hydrologic Unit 10160011, on left bank at downstream side of highway bridge, 3.9 mi upstream from Beaver Creek, 17.2 mi upstream from mouth, and 9 mi northeast of Yankton.

DRAINAGE AREA.--20,600 mi^2, approximately, of which about 5,110 mi^2 is probably noncontributing (revised).

PERIOD OF RECORD.--Oct. 1, 1981, to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,153.38 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for winter period, Nov. 25 to Mar. 27, which are poor. Low flow regulated by Arrowwood and Jim Lakes, and Jamestown Reservoir, combined capacity, 246,000 acre-ft, the largest of which is Jamestown Reservoir, capacity, 229,470 acre-ft, 527 mi upstream since May 1953. Occasional backwater caused by Beaver Creek. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,400 ft^3/s June 23, 1984 (gage height, 24.34 ft); minimum daily discharge, 0.78 ft^3/s Oct. 4, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 26,400 ft^3/s at 1945 hours, June 23 (gage height, 24.34 ft); minimum daily discharge, 80 ft^3/s Jan. 19-31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	169	156	220	140	85	380	3650	3880	1750	9810	692	232
2	164	150	210	140	85	400	3610	4040	1610	8920	704	220
3	153	146	210	130	85	450	3760	4100	1440	8170	711	213
4	157	145	200	130	85	500	3970	3960	1320	7520	643	214
5	160	145	200	130	85	520	4100	3760	1370	6880	590	208
6	159	142	200	130	85	540	4190	3640	1330	6310	562	203
7	157	136	190	120	85	580	4210	4030	1260	5780	550	201
8	152	137	190	120	85	620	4220	4070	1550	5400	543	190
9	148	149	190	110	85	800	4100	3810	1830	5100	528	188
10	148	157	180	110	85	1000	3900	3530	2080	4800	513	192
11	143	169	180	110	90	1100	3860	3270	2310	4480	503	189
12	134	180	180	100	100	1100	5180	3030	2880	4260	496	201
13	136	187	180	100	110	1000	6810	2830	4710	4050	490	186
14	141	190	170	95	120	900	7840	2580	6100	3840	488	174
15	144	194	170	90	150	800	9800	2380	6170	3630	481	170
16	137	213	170	90	180	750	10400	2210	5700	3430	458	169
17	130	227	170	85	250	700	9730	2040	5440	3240	443	168
18	131	226	170	85	300	650	8880	1870	5210	3030	428	163
19	132	241	160	80	350	650	8050	1740	4890	2850	408	160
20	135	255	160	80	350	650	7350	1620	5020	2660	388	165
21	141	278	160	80	320	700	6680	1520	7200	2430	369	172
22	146	291	160	80	280	800	6210	1430	14600	2160	346	171
23	152	284	160	80	290	900	5770	1370	24900	1770	336	160
24	157	271	150	80	310	1000	5310	1340	26000	1400	339	149
25	160	250	150	80	330	1300	4780	1350	23400	1180	330	149
26	162	230	150	80	340	1700	4390	1320	19700	1170	308	153
27	168	230	150	80	350	2500	4090	1420	16600	1080	291	153
28	169	220	150	80	360	3800	3800	1700	14300	960	279	146
29	167	220	140	80	370	3780	3610	1760	12500	859	271	138
30	167	220	140	80	---	3750	3660	1820	11000	777	260	140
31	163	---	140	80	---	3690	---	1820	---	722	244	---
TOTAL	4682	6039	5350	3055	5800	38010	165910	79240	234170	118668	13992	5337
MEAN	151	201	173	98.5	200	1226	5530	2556	7806	3828	451	178
MAX	169	291	220	140	370	3800	10400	4100	26000	9810	711	232
MIN	130	136	140	80	85	380	3610	1320	1260	722	244	138
AC-FT	929	11980	10610	6060	11500	75390	329100	157200	464500	235400	27750	10590

CAL YR 1983 TOTAL 256276 MEAN 702 MAX 2740 MIN 70 AC-FT 508300
WTR YR 1984 TOTAL 680253 MEAN 1859 MAX 26000 MIN 80 AC-FT 1349000

06478515 MISSOURI RIVER NEAR GAYVILLE, SD

STAGE RECORDS

LOCATION.--Lat 42°51'01", long 97°13'12", in SW¼NW¼ sec.27, T.93 N., R.54 W., Yankton County, Hydrologic Unit 10170101, 3.8 mi southwest of Gayville, 4.1 mi downstream from James River and at mile 796.0.

PERIOD OF RECORD.--October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,100.00 ft National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Stage regulated by Lewis and Clark Lake 15.0 mi upstream (see station 06467000). Gage heights for period of October 1969 to September 1980 in files of Corps of Engineers.

GAGE HEIGHT (FEET), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49.51	49.45	49.78	51.91	48.27	47.36	47.29	47.71	47.68	48.27	50.69	50.62
2	49.49	49.43	49.36	51.73	47.94	47.34	47.17	47.70	47.91	48.38	50.69	50.60
3	49.48	49.42	49.20	51.50	47.57	47.37	46.94	47.69	48.19	48.53	50.72	50.60
4	49.51	49.43	48.88	51.13	47.20	47.35	46.76	47.78	48.69	48.67	50.83	50.62
5	49.49	49.45	48.49	50.90	48.08	47.32	46.75	47.79	48.78	48.44	50.81	50.60
6	49.51	49.42	48.32	50.24	50.65	47.52	46.74	47.79	48.63	48.56	50.80	50.61
7	49.51	49.43	48.13	49.96	49.99	47.18	46.72	47.86	48.28	48.76	50.80	50.60
8	49.50	49.38	48.13	49.75	48.79	48.02	46.72	47.86	48.14	49.02	50.77	50.57
9	49.51	49.35	48.07	49.55	47.56	48.04	46.71	---	47.61	49.37	50.79	50.57
10	49.53	49.38	47.96	49.32	47.24	48.03	46.68	---	47.15	49.70	50.77	50.60
11	49.47	49.40	47.93	49.24	47.22	48.00	46.81	---	47.38	50.10	50.77	50.60
12	49.44	49.45	48.02	49.11	47.42	48.13	47.30	---	47.36	50.38	50.76	50.60
13	49.45	49.43	47.93	48.82	47.45	47.94	47.65	---	46.81	50.72	50.75	50.56
14	49.45	49.42	47.98	49.06	47.43	47.83	47.71	---	47.24	50.92	50.76	50.54
15	49.46	49.42	48.07	49.19	47.43	47.78	47.92	47.01	47.73	51.05	50.74	50.52
16	49.44	49.45	48.55	49.31	47.44	47.81	48.19	47.38	47.70	51.06	50.71	50.51
17	49.45	49.47	48.70	49.31	47.10	47.87	48.21	47.75	47.71	51.02	50.72	50.48
18	49.45	49.47	49.15	49.17	47.41	47.98	48.27	47.73	47.61	50.99	50.71	50.44
19	49.45	49.49	49.34	49.19	47.42	48.13	48.24	47.70	47.45	50.94	50.72	50.42
20	49.33	49.41	49.27	49.18	47.44	48.23	48.24	47.68	47.20	50.81	50.73	50.29
21	49.43	49.47	49.20	49.30	47.42	48.32	48.02	47.64	47.95	50.82	50.69	50.32
22	49.45	49.48	49.26	49.32	47.07	48.41	47.60	47.60	48.06	50.78	50.65	50.25
23	49.47	49.45	50.06	49.33	47.37	48.39	47.53	47.69	48.94	50.70	50.66	50.22
24	49.44	49.46	52.40	49.30	47.39	48.19	47.46	47.71	49.53	50.67	50.67	50.20
25	49.45	49.46	52.90	49.30	47.38	47.93	47.44	47.73	49.55	50.74	50.68	50.30
26	49.44	49.44	52.84	49.28	47.38	47.40	47.56	47.87	49.17	50.76	50.69	50.37
27	49.46	49.43	52.64	49.06	47.38	46.95	47.69	47.88	48.89	50.70	50.65	50.35
28	49.43	49.44	52.44	49.13	47.39	46.87	47.73	47.61	48.79	50.77	50.65	50.30
29	49.44	49.46	52.30	49.03	47.38	46.98	47.75	47.14	48.58	50.77	50.62	50.32
30	49.45	49.56	52.19	49.07	---	47.22	47.78	47.24	48.29	50.69	50.61	50.30
31	49.46	---	52.06	48.65	---	47.29	---	47.47	---	50.69	50.63	---
MEAN	49.46	49.44	49.66	49.62	47.70	47.72	47.45	---	48.10	50.12	50.72	50.46
MAX	49.53	49.56	52.90	51.91	50.65	48.41	48.27	---	49.55	51.06	50.83	50.62
MIN	49.33	49.35	47.93	48.65	47.07	46.87	46.68	---	46.81	48.27	50.61	50.20

06478540 LITTLE VERMILLION RIVER NEAR SALEM, SD
(Hydrologic bench-mark station)

LOCATION.--Lat 43°47'39", long 97°22'02", in SW¼ sec.19, T.104 N., R.54 W., McCook County, Hydrologic Unit 10170102, on right wingwall at downstream end of culvert on county highway, 2.0 mi upstream from small left-bank tributary and 5.2 mi northeast of Salem.

DRAINAGE AREA.--77.7 mi^2, approximately (revised).

PERIOD OF RECORD.--October 1966 to current year.

GAGE.--Water-stage recorder and concrete dam. Altitude of gage is 1,510 ft, from topographic map.

REMARKS.--Records good except those for winter period, Feb. 10 to Mar. 31, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--18 years, 4.12 ft^3/s (2,980 acre-ft/yr); median of yearly mean discharges, 1.7 ft^3/s (1,200 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 900 ft^3/s June 20, 1984 (gage height, 9.88 ft) (backwater from tributary); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 10 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar. 28	--	220	a6.80	June 18	1300	464	8.10
Apr. 13	1200	555	7.59	June 20	2200	*900	*9.88
Apr. 30	0300	29	5.05	July 11	1400	14	4.59
May 9	1600	26	5.02				

a Backwater from ice.
No flow Oct. 1 to Feb. 9 and Aug. 12 to Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	4.0	89	27	3.6	36	.93	.00
2	.00	.00	.00	.00	.00	4.0	77	27	3.3	28	.82	.00
3	.00	.00	.00	.00	.00	4.0	89	25	2.9	23	.55	.00
4	.00	.00	.00	.00	.00	3.0	99	23	2.9	19	.50	.00
5	.00	.00	.00	.00	.00	2.0	92	20	3.1	15	.45	.00
6	.00	.00	.00	.00	.00	1.0	73	18	8.0	14	.29	.00
7	.00	.00	.00	.00	.00	.90	61	21	8.4	12	.23	.00
8	.00	.00	.00	.00	.00	.80	56	20	12	11	.29	.00
9	.00	.00	.00	.00	.00	.70	50	25	22	9.3	.23	.00
10	.00	.00	.00	.00	.10	.60	45	25	31	9.9	.03	.00
11	.00	.00	.00	.00	.20	.50	67	21	34	14	.01	.00
12	.00	.00	.00	.00	.50	.50	300	17	43	13	.00	.00
13	.00	.00	.00	.00	1.0	.50	527	13	74	9.7	.00	.00
14	.00	.00	.00	.00	3.0	1.0	341	11	129	8.0	.00	.00
15	.00	.00	.00	.00	5.0	1.0	160	9.3	207	7.0	.00	.00
16	.00	.00	.00	.00	5.0	2.0	101	8.4	268	5.6	.00	.00
17	.00	.00	.00	.00	5.0	2.0	68	7.1	343	5.0	.00	.00
18	.00	.00	.00	.00	2.0	2.0	51	6.5	448	4.1	.00	.00
19	.00	.00	.00	.00	2.0	2.0	40	5.7	365	3.7	.00	.00
20	.00	.00	.00	.00	3.0	2.0	31	4.7	750	3.6	.00	.00
21	.00	.00	.00	.00	4.0	2.0	26	4.0	800	3.3	.00	.00
22	.00	.00	.00	.00	5.0	3.0	23	3.6	470	2.8	.00	.00
23	.00	.00	.00	.00	6.0	3.0	20	4.1	312	2.1	.00	.00
24	.00	.00	.00	.00	7.0	4.0	18	2.3	202	2.0	.00	.00
25	.00	.00	.00	.00	6.0	5.0	17	1.9	146	1.6	.00	.00
26	.00	.00	.00	.00	6.0	20	16	1.5	116	2.4	.00	.00
27	.00	.00	.00	.00	5.0	50	19	3.0	94	3.1	.00	.00
28	.00	.00	.00	.00	4.0	190	20	7.1	77	3.5	.00	.00
29	.00	.00	.00	.00	4.0	110	22	6.5	60	2.5	.00	.00
30	.00	.00	.00	.00	---	100	28	5.6	47	1.7	.00	.00
31	.00	---	.00	.00	---	95	---	4.4	---	1.2	.00	---
TOTAL	.00	.00	.00	.00	73.80	616.50	2626	378.7	5082.2	277.1	4.33	.00
MEAN	.00	.00	.00	.00	2.54	19.9	87.5	12.2	169	8.94	.14	.00
MAX	.00	.00	.00	.00	7.0	190	527	27	800	36	.93	.00
MIN	.00	.00	.00	.00	.00	.50	16	1.5	2.9	1.2	.00	.00
AC-FT	.0	.00	.00	.00	146	1220	5210	751	10080	550	8.6	.00

CAL YR 1983 TOTAL 4848.77 MEAN 13.3 MAX 190 MIN .00 AC-FT 9620
WTR YR 1984 TOTAL 9058.63 MEAN 24.8 MAX 800 MIN .00 AC-FT 17970

06478690 WEST FORK VERMILLION RIVER NEAR PARKER, SD

LOCATION.--Lat 43°24'55", long 97°12'18", in NE¼NE¼ sec.10, T.99 N., R.54 W., Turner County, Hydrologic Unit 10170102, on left downstream wingwall of bridge, 3.7 mi northwest of Parker and 13.9 mi upstream from confluence with East Fork Vermillion River.

DRAINAGE AREA.--370 mi^2, approximately.

PERIOD OF RECORD.--August 1961 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,340 ft, from topographic map. Prior to Oct. 11, 1973, nonrecording gage and crest-stage gage at same site and datum.

REMARKS.--Records good. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--23 years, 32.4 ft^3/s (23,470 acre-ft/yr); median of yearly mean discharges, 8.6 ft^3/s (6,200 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,800 ft^3/s June 16, 1984 (gage height, 12.57 ft); no flow for many days in most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar. 29	2300	849	8.14	June 8	1145	1020	7.96
Apr. 4	0600	860	8.18	June 12	0230	1870	10.03
Apr. 13	0030	4290	12.47	June 16	2045	*4800	*12.57
May 1	0345	417	5.23	June 21	2315	4180	12.15
May 7	1015	605	6.32	July 10	1430	183	3.59
June 4	2100	878	7.48				

Minimum daily discharge, 0.44 ft^3/s Oct. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.66	1.9	1.9	1.9	2.3	20	658	395	47	241	29	2.0
2	.52	1.6	1.9	2.0	1.9	19	558	329	38	167	33	2.0
3	.66	1.1	2.0	2.0	1.9	19	626	287	32	135	30	2.0
4	.59	1.0	2.0	2.0	2.0	15	841	233	236	112	32	2.1
5	.66	.86	2.0	2.1	1.5	14	634	190	437	98	27	2.2
6	.71	1.0	2.1	2.3	1.5	13	419	208	252	89	23	2.1
7	1.2	1.7	2.2	2.4	1.8	15	295	545	286	79	21	2.4
8	1.4	2.0	2.3	2.4	2.0	18	252	427	892	73	19	2.3
9	1.5	2.5	2.5	2.6	2.1	17	224	295	709	65	18	2.3
10	1.6	2.4	2.5	2.6	2.5	18	180	209	1410	124	19	2.4
11	1.7	2.1	2.6	2.6	3.2	17	368	148	1240	136	18	2.1
12	1.5	2.1	2.7	2.2	3.6	18	2690	111	1620	93	18	2.2
13	1.6	2.3	2.7	2.4	3.6	18	3910	88	1270	77	18	2.0
14	1.7	2.2	2.6	2.2	3.7	17	2570	70	1120	66	17	1.9
15	1.7	2.2	2.4	2.2	11	19	1720	57	2020	59	15	1.9
16	1.5	2.2	2.5	2.1	15	23	1220	47	3510	54	13	1.8
17	1.2	2.4	2.5	2.0	12	33	855	42	3910	55	14	1.9
18	1.1	2.3	2.4	2.0	8.0	42	583	39	2170	52	13	1.8
19	.68	3.7	2.7	1.8	8.0	33	411	36	1510	47	11	1.7
20	.92	3.1	2.8	1.8	13	29	290	33	2400	45	11	1.5
21	.66	1.9	3.0	1.7	13	27	209	29	3200	43	10	1.4
22	.47	1.2	2.8	1.4	13	30	185	28	3380	40	8.5	1.4
23	.45	1.2	2.7	1.6	13	34	173	27	2250	38	7.4	1.2
24	.44	1.2	2.2	1.5	13	44	155	25	1730	37	6.9	1.1
25	.47	1.3	2.2	1.5	14	103	136	23	1390	37	5.8	1.1
26	.56	1.4	2.1	1.6	15	386	121	21	1090	39	4.9	1.1
27	.58	1.6	1.9	1.6	16	542	119	30	820	36	4.3	1.3
28	.79	1.7	1.7	1.8	17	624	118	98	594	35	3.2	1.5
29	1.4	1.8	1.7	2.0	18	795	124	96	449	33	2.3	1.6
30	1.8	1.8	1.7	2.1	---	752	301	79	325	31	1.9	1.9
31	1.9	---	1.7	2.0	---	706	---	69	---	30	2.0	---
TOTAL	32.62	55.76	71.0	62.4	232.6	4460	20945	4314	40337	2266	456.2	54.2
MEAN	1.05	1.86	2.29	2.01	8.02	144	698	139	1345	73.1	14.7	1.81
MAX	1.9	3.7	3.0	2.6	18	795	3910	545	3910	241	33	2.4
MIN	.44	.86	1.7	1.4	1.5	13	118	21	32	30	1.9	1.1
AC-FT	6	111	141	124	461	8850	41540	8560	80010	4490	905	108

CAL YR 1983 TOTAL 44359.16 MEAN 122 MAX 1750 MIN .36 AC-FT 87990
WTR YR 1984 TOTAL 73286.78 MEAN 200 MAX 3910 MIN .44 AC-FT 145400

06479010 VERMILLION RIVER NEAR VERMILLION, SD

LOCATION.--Lat 42°49'02", long 96°55'26", in SE¼SE¼NW¼ sec.1, T.92 N., R.52 W., Clay County, Hydrologic Unit 10170102, on left bank 30 ft downstream from bridge, 2.7 mi north of Vermillion, 2.9 mi upstream from Clay Creek, and 10.8 mi upstream from mouth.

PERIOD OF RECORD.--Oct. 1, 1983, to Sept. 30, 1983.

GAGE.--Water-stage recorder. Altitude of gage is 1,125 ft, from topographic map.

REMARKS.--Records good except those for winter period, Nov. 26 to Mar. 6, which are poor. Several observations of water temperature and specific conductance were made during the year. Corps of Engineers satellite data-collection platform at station.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Apr. 16	1315	10800	27.68	June 23	--	*21400	*31.77
May 29	0915	1210	12.88				

Minimum daily discharge, 47 ft^3/s Oct. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60	53	85	52	60	140	2270	2400	949	4090	343	133
2	60	54	85	52	61	140	2290	2290	811	3490	325	132
3	60	54	85	52	61	150	2700	2240	689	3130	311	124
4	62	57	85	52	62	160	2950	2220	597	2820	296	117
5	60	60	85	52	62	170	3010	2240	791	2550	281	111
6	60	58	85	50	63	170	3040	2350	1220	2300	272	109
7	60	58	85	50	64	200	3120	2860	1320	1940	261	108
8	57	60	85	50	64	316	3420	2810	1370	1500	252	105
9	56	61	85	51	64	331	3570	2640	1220	1270	239	102
10	56	61	85	50	64	307	3440	2530	1290	1250	225	101
11	57	61	80	50	64	314	3320	2480	1490	1150	212	101
12	56	60	80	50	65	294	4450	2430	1840	1030	197	102
13	56	64	78	50	68	255	5990	2390	1960	964	186	101
14	55	68	75	50	72	195	8310	2300	2000	852	179	101
15	56	66	73	50	82	208	10600	2130	2100	820	174	104
16	55	64	71	50	95	197	10700	1790	2630	749	168	98
17	52	63	70	50	200	234	9280	1370	4070	762	165	93
18	54	63	68	50	180	239	7730	1120	7880	687	166	90
19	56	80	66	50	180	240	6250	963	12200	655	167	87
20	57	123	65	50	200	261	4810	851	12000	597	167	86
21	57	157	64	50	240	270	4130	735	14500	553	164	82
22	57	158	62	50	270	279	3730	652	15700	501	159	79
23	58	150	60	50	300	325	3400	557	20200	454	151	79
24	60	117	58	50	300	446	3180	523	16900	419	151	77
25	59	97	57	50	300	928	3020	504	15300	378	148	76
26	56	100	56	52	250	1810	3110	472	12400	401	142	75
27	55	95	55	54	200	2010	2870	502	9500	395	139	75
28	55	90	53	56	160	2090	2620	973	7390	365	133	75
29	50	90	53	58	150	2170	2390	1200	6500	354	133	75
30	52	90	53	59	---	2270	2440	1170	5030	359	133	77
31	53	---	53	59	---	2270	---	1090	---	355	133	---
TOTAL	1757	2432	2200	1599	4001	19389	132140	50782	181847	37140	6172	2875
MEAN	56.7	81.1	71.0	51.6	138	625	4405	1638	6062	1198	199	95.8
MAX	62	158	85	59	300	2270	10700	2860	20200	4090	343	133
MIN	50	53	53	50	60	140	2270	472	597	354	133	75
AC-FT	349	4820	4360	3170	7940	38460	262100	100700	360700	73670	12240	5700

WTR YR 1984 TOTAL 442334 MEAN 1209 MAX 20200 MIN 50 AC-FT 877400

06479438 BIG SIOUX RIVER NEAR WATERTOWN, SD

LOCATION.--Lat 45°00'22", long 97°09'53", in NE¼NE¼NE¼ sec.16, T.118 N., R.52 W., Codington County, Hydrologic Unit 10170202, on left bank at downstream side of county highway bridge, 4.9 mi downstream from Mahoney Creek, 6.5 mi upstream from inlet-outlet to Lake Kampeska, and 7.5 mi northwest of Watertown.

DRAINAGE AREA.--1,007 mi^2, approximately, of which about 779 mi^2 is probably noncontributing (revised).

PERIOD OF RECORD.--October 1972 to current year.

REVISED RECORDS.--WDR SD-78-1: 1973-74(M), 1976-77(M).

GAGE.--Water-stage recorder. Datum of gage is 1,725.81 ft National Geodetic Vertical Datum of 1929 (South Dakota Department of Transportation bench mark).

REMARKS.--Records good except those for winter period, Nov. 22 to Mar. 26, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--12 years, 19.7 ft^3/s (14,270 acre-ft/yr); median of yearly mean discharge, 9.4 ft^3/s (6,800 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,720 ft^3/s Mar. 30, 1978 (gage height, 11.07 ft); no flow at times in 1974-82.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 300 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar. 25	2400	1000	a*9.52	Apr. 13	0630	344	7.30
Mar. 31	0945	416	7.58	June 16	1330	*1330	9.25

a Backwater from ice.
No flow Dec. 22-31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.32	.88	3.5	.05	3.6	80	323	67	17	36	5.5	1.9
2	.77	.95	3.3	.08	3.4	60	262	57	16	33	4.7	2.0
3	1.4	2.8	3.2	.10	3.2	47	209	50	15	32	6.6	2.0
4	1.9	4.5	3.1	.16	3.0	39	174	48	14	31	7.0	2.2
5	2.4	4.9	3.0	.22	2.7	36	135	47	14	30	7.2	2.2
6	1.1	7.0	2.9	.30	2.2	33	124	53	24	25	11	1.7
7	.67	6.5	2.8	.50	1.6	31	104	69	33	22	11	1.6
8	.32	5.3	2.7	.65	1.4	28	95	86	39	20	13	1.3
9	.32	5.7	2.6	.60	1.6	26	92	82	59	19	13	1.7
10	.32	5.6	2.5	.55	1.8	24	87	67	99	17	9.0	2.1
11	.32	5.3	2.4	.40	1.9	23	87	54	139	16	8.0	2.1
12	.25	6.5	2.3	.35	2.0	22	180	47	142	15	7.0	2.2
13	.77	7.7	2.2	.28	2.1	21	326	49	120	14	6.2	1.1
14	.32	6.6	2.0	.26	2.2	21	256	44	96	12	4.5	1.5
15	1.7	4.5	1.0	.24	2.3	22	190	41	227	11	4.5	1.2
16	3.0	6.4	.60	.22	2.4	18	142	38	1180	10	4.1	1.3
17	5.7	7.3	.40	.21	2.6	15	106	35	566	10	3.2	.74
18	2.9	7.2	.30	.20	2.7	13	80	33	378	9.5	3.2	.56
19	1.6	8.1	.16	.18	2.9	11	67	31	283	8.8	3.2	.72
20	1.9	9.4	.10	.17	3.1	9.4	58	29	214	8.0	3.2	1.1
21	3.2	9.9	.04	.15	3.3	8.9	50	27	157	7.6	6.7	.94
22	1.7	10	.00	.14	3.6	35	44	26	133	4.9	5.7	.46
23	2.0	12	.00	.34	80	90	42	25	142	5.0	4.9	.65
24	2.2	8.7	.00	.41	180	350	37	23	135	5.4	4.5	1.9
25	.67	8.0	.00	.60	220	950	36	23	107	7.3	4.9	1.3
26	1.9	6.3	.00	1.0	170	900	41	21	85	7.8	4.0	1.2
27	1.3	4.9	.00	1.2	130	668	59	21	68	7.7	3.8	1.1
28	1.2	4.5	.00	1.7	120	318	95	21	56	7.3	3.2	1.7
29	1.1	4.0	.00	2.3	110	202	103	20	48	6.4	2.9	2.2
30	.90	3.5	.00	4.0	---	374	85	20	42	5.9	2.9	2.1
31	1.0	---	.00	3.8	---	387	---	19	---	5.5	2.2	---
TOTAL	45.15	184.93	41.10	21.36	1065.6	4862.3	3689	1273	4648	450.1	180.6	44.77
MEAN	1.46	6.16	1.33	.69	36.7	157	123	41.1	155	14.5	5.83	1.49
MAX	5.7	12	3.5	4.0	220	950	326	86	1180	36	13	2.2
MIN	.25	.88	.00	.05	1.4	8.9	36	19	14	4.9	2.2	.46
AC-FT	9	367	82	42	2110	9640	7320	2520	9220	893	359	89

CAL YR 1983 TOTAL 2973.98 MEAN 8.15 MAX 278 MIN .00 AC-FT 5900
WTR YR 1984 TOTAL 16506.11 MEAN 45.1 MAX 1180 MIN .00 AC-FT 32740

06479515 WILLOW CREEK NEAR WATERTOWN, SD

LOCATION.--Lat 44°54'17", long 97°03'31", in NE¼NW¼ sec.34, T.117 N., R.52 W., Codington County, Hydrologic Unit 10170202, on right bank 5 ft downstream from bridge, 4.7 mi upstream from mouth, and 2.8 mi east of Watertown.

DRAINAGE AREA.--110 mi², approximately (revised).

PERIOD OF RECORD.--September 1971 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,721.24 ft National Geodetic Vertical Datum of 1929 (South Dakota Department of Transportation bench mark).

REMARKS.--Records good except those for winter period, Nov. 30 to Mar. 30, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--13 years, 14.0 ft³/s (10,140 acre-ft/yr); median of yearly mean discharges, 5.8 ft³/s (4,200 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,040 ft³/s June 15, 1984 (gage height, 7.50 ft); maximum gage height, 9.86 ft Mar. 15, 1972 (backwater from ice); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 25	0745	1800	a*8.16	June 8	0145	1450	6.18
Apr. 12	1815	281	4.78	June 15	2000	*4040	7.50
June 6	1030	1800	6.42	June 23	0115	375	4.98

a Backwater from ice.
No flow Jan. 13-20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.80	.32	1.4	.01	.02	60	160	47	6.7	58	9.2	1.8
2	.69	.32	1.2	.01	.03	50	102	45	6.8	58	8.2	1.8
3	.62	.85	1.1	.02	.02	20	89	44	5.7	55	18	2.0
4	.54	.71	1.0	.05	.02	11	65	43	6.4	52	25	2.2
5	.52	.82	.82	.16	.02	9.0	79	41	9.0	49	23	2.1
6	.44	.93	.72	.24	.01	7.5	75	47	757	45	18	2.1
7	.44	.82	.60	.28	.01	7.0	72	68	294	40	15	2.1
8	.36	.80	.55	.29	.01	6.0	73	58	567	38	14	1.9
9	.34	.75	.45	.23	.02	5.5	73	48	107	36	12	1.8
10	.34	.78	.40	.16	.10	5.0	63	42	118	34	11	1.8
11	.57	.75	.35	.10	.30	5.0	76	38	110	30	9.4	2.0
12	.43	1.0	.30	.02	1.0	5.0	193	36	78	31	8.0	2.4
13	.42	1.1	.28	.00	.70	6.0	173	64	66	33	7.2	2.2
14	.41	1.6	.25	.00	.50	10	138	57	62	27	6.7	2.1
15	.55	1.4	.22	.00	.70	20	109	41	1280	30	6.4	2.1
16	.45	1.3	.20	.00	11	21	93	34	608	31	7.1	1.8
17	.38	1.1	.16	.00	5.0	20	86	31	152	28	6.3	1.7
18	.44	1.3	.12	.00	3.0	17	79	28	145	27	5.8	1.5
19	.54	2.5	.10	.00	4.0	15	74	23	108	24	5.3	1.4
20	.41	3.1	.08	.00	6.0	14	70	23	104	24	5.2	1.2
21	.38	3.2	.06	.02	9.0	13	66	21	100	24	7.1	.89
22	.31	3.7	.05	.08	80	40	62	19	147	27	6.3	.86
23	.26	5.1	.04	.13	550	130	58	16	219	27	5.2	1.3
24	.23	6.0	.03	.10	140	400	55	14	112	29	4.0	2.7
25	.25	5.6	.03	.07	150	1300	51	13	89	30	3.5	2.2
26	.29	5.2	.03	.04	110	800	59	12	79	30	3.2	2.1
27	.32	4.8	.02	.02	80	180	69	13	72	31	3.2	2.5
28	.21	4.2	.02	.04	75	80	62	13	68	26	3.0	1.8
29	.28	3.2	.01	.02	70	65	46	12	64	10	2.7	1.6
30	.32	1.6	.01	.01	---	130	49	8.7	59	8.8	2.2	1.4
31	.32	---	.01	.01	---	293	---	7.7	---	9.7	2.2	---
TOTAL	12.86	64.85	10.61	2.11	1296.46	3745.0	2519	1012.4	5599.6	1002.5	263.4	55.35
MEAN	.41	2.16	.34	.07	44.7	121	84.0	32.7	187	32.3	8.50	1.84
MAX	.80	6.0	1.4	.29	550	1300	193	68	1280	58	25	2.7
MIN	.21	.32	.01	.00	.01	5.0	46	7.7	5.7	8.8	2.2	.86
AC-FT	2	129	21	4.2	2570	7430	5000	2010	11110	1990	522	110

CAL YR 1983 TOTAL 1174.85 MEAN 3.22 MAX 224 MIN .00 AC-FT 2330
WTR YR 1984 TOTAL 15584.14 MEAN 42.6 MAX 1300 MIN .00 AC-FT 30910

06479525 BIG SIOUX RIVER NEAR CASTLEWOOD, SD

LOCATION.--Lat 44°43'54", long 97°02'39", in SW¼SW¼ sec.26, T.115 N., R.52 W., Hamlin County, Hydrologic Unit 10170202, on right bank at upstream side of highway bridge on State Highway 22, 3.25 mi east of intersection of U.S. Highway 81 and State Highway 22, and 1.0 mi northwest of Castlewood.

DRAINAGE AREA.--1,997 mi², approximately, of which about 1,427 mi² is probably noncontributing (revised).

PERIOD OF RECORD.--October 1976 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,667.52 ft National Geodetic Vertical Datum of 1929 (South Dakota Department of Transportation bench mark).

REMARKS.--Records good except those for winter period, Dec. 21 to Mar. 31, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--8 years, 46.6 ft³/s (33,760 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,740 ft³/s Mar. 31, 1978 (gage height, 11.10 ft); maximum gage height, 11.24 ft Apr. 13, 1979; no flow for many days in most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 450 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 27	1100	750	a10.05	June 16	1315	*1160	*10.68
June 8	2045	856	9.65	June 23	1800	539	8.33

a Backwater from ice.
Minimum daily discharge, 0.20 ft³/s Dec. 28-Jan. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.2	7.5	8.1	.20	9.5	110	277	183	60	203	72	21
2	6.2	8.0	7.8	.21	9.0	90	174	174	58	194	67	18
3	4.9	8.5	7.4	.24	8.5	75	156	169	57	186	77	20
4	4.7	11	7.0	.27	8.0	70	140	171	56	174	102	18
5	4.2	11	7.5	.40	7.5	60	122	181	55	165	97	18
6	4.2	10	7.9	.70	6.5	55	125	189	500	157	93	16
7	4.2	11	7.9	1.0	5.5	45	123	222	722	148	85	16
8	4.4	10	7.6	1.3	5.0	40	123	229	806	140	82	16
9	5.1	11	6.9	1.2	4.5	35	124	205	621	133	72	18
10	5.4	10	6.8	1.1	5.0	30	123	191	373	127	62	17
11	4.7	11	6.8	.90	6.0	28	124	182	357	121	58	14
12	5.1	10	6.8	.70	7.0	27	180	172	299	116	54	14
13	4.7	12	6.5	.60	8.0	28	304	195	249	111	51	13
14	4.7	15	6.5	.55	9.0	30	259	194	242	110	46	14
15	4.9	12	4.3	.52	10	32	228	185	512	110	45	14
16	5.1	11	3.9	.48	12	28	194	170	1110	107	42	14
17	5.9	8.0	3.5	.46	14	20	181	160	842	106	39	14
18	5.9	11	2.3	.42	17	17	175	150	518	101	38	13
19	7.9	13	1.3	.39	20	16	169	135	418	98	37	11
20	7.2	18	.85	.37	27	16	166	120	360	95	36	11
21	5.1	16	.60	.40	34	16	161	115	343	90	44	11
22	4.4	9.8	.40	.50	50	17	156	105	342	90	44	11
23	4.9	7.8	.30	.60	100	20	156	100	475	89	38	14
24	4.9	11	.25	.70	230	40	158	95	428	90	35	23
25	5.1	13	.22	.90	215	200	158	85	328	86	34	20
26	6.0	12	.21	1.4	200	600	160	80	293	83	32	16
27	6.9	11	.21	2.0	190	700	197	75	268	83	30	16
28	6.7	8.8	.20	5.0	180	300	287	70	249	81	28	15
29	6.7	6.7	.20	10	150	160	224	65	231	79	27	14
30	7.2	7.8	.20	11	---	160	178	65	216	77	25	15
31	7.5	---	.20	10	---	210	---	62	---	74	24	---
TOTAL	171.0	322.9	120.64	54.51	1548.0	3275	5302	4494	11388	3624	1616	465
MEAN	5.52	10.8	3.89	1.76	53.4	106	177	145	380	117	52.1	15.5
MAX	7.9	18	8.1	11	230	700	304	229	1110	203	102	23
MIN	4.2	6.7	.20	.20	4.5	16	122	62	55	74	24	11
AC-FT	33	640	239	108	3070	6500	10520	8910	22590	7190	3210	922

CAL YR 1983	TOTAL	4177.43	MEAN	11.4	MAX	169	MIN	.00	AC-FT 8290
WTR YR 1984	TOTAL	32381.05	MEAN	88.5	MAX	1110	MIN	.20	AC-FT 64230

BEST COPY AVAILABLE

06479529 STRAY HORSE CREEK NEAR CASTLEWOOD, SD

LOCATION.--Lat 44°43'52", long 96°57'23", in NE¼NE¼NW¼ sec.33, T.115 N., R.51 W., Hamlin County, Hydrologic Unit 10170202, on right bank at downstream side of bridge on State Highway 22, 3.5 mi east of Castlewood, 6.4 mi upstream from mouth, and 7.0 mi north of Dempster.

DRAINAGE AREA.--74.5 mi², approximately (revised).

PERIOD OF RECORD.--October 1968 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,703.88 ft National Geodetic Vertical Datum of 1929 (South Dakota Department of Transportation bench mark).

REMARKS.--Records good except those for winter period, Nov. 28 to Mar. 24, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--16 years, 11.0 ft³/s (7,970 acre-ft/yr); median of yearly mean discharges, 7.2 ft³/s (5,200 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,000 ft³/s Apr. 7, 1969 (gage height, 14.65 ft), from rating curve extended above 3,500 ft³/s on basis of contracted-opening measurement of peak flow; no flow for many days most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 175 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 24	--	550	a*10.78	June 8	0530	330	7.77
Mar. 30	2330	531	8.35	June 10	1130	511	8.30
Apr. 12	1200	213	7.28	June 15	1700	*1180	9.50
June 6	1130	503	8.28	June 22	2145	280	7.57

a Backwater from ice.
Minimum daily discharge, 0.11 ft³/s Feb. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.61	.23	1.2	.21	.26	22	68	11	3.9	7.3	1.1	.24
2	.60	.29	1.1	.22	.25	15	48	10	3.5	7.2	1.0	.25
3	.53	.41	1.1	.23	.24	14	40	9.9	3.0	7.0	1.1	.30
4	.50	.44	1.0	.24	.22	12	34	9.5	2.9	7.4	1.8	.33
5	.48	.44	.95	.25	.16	11	27	9.8	5.8	6.5	1.5	.35
6	.36	.44	.95	.26	.12	9.0	25	14	230	6.5	1.2	.34
7	.29	.44	.95	.27	.11	7.5	22	37	114	5.5	1.2	.33
8	.27	.41	.95	.27	.14	6.5	23	39	215	5.5	1.2	.30
9	.23	.41	.95	.28	.19	5.5	29	23	81	4.6	1.0	.26
10	.31	.44	.95	.28	.22	5.0	25	17	234	3.6	.91	.29
11	.31	.44	.92	.27	.28	4.7	36	13	119	3.9	.91	.36
12	.24	.49	.90	.26	.40	4.7	170	15	92	3.4	.91	.39
13	.26	.57	.87	.26	.65	4.6	125	20	57	3.2	.81	.33
14	.32	.91	.83	.25	.90	4.7	82	13	47	3.3	.65	.38
15	.49	1.0	.78	.24	1.3	4.9	52	12	502	3.2	.71	.40
16	.50	.99	.72	.23	1.9	5.2	35	10	281	3.0	.81	.38
17	.47	.91	.66	.23	3.3	5.4	27	9.0	132	3.3	.85	.38
18	.54	.81	.60	.22	6.0	6.0	22	7.8	115	3.0	1.1	.29
19	.64	1.4	.52	.22	10	6.5	18	8.2	56	2.8	1.0	.25
20	.65	2.6	.45	.21	15	7.0	15	6.7	51	3.0	.71	.22
21	.58	3.6	.40	.20	30	10	12	6.2	48	2.5	1.4	.23
22	.49	2.9	.38	.20	90	30	11	6.9	107	2.2	1.3	.21
23	.39	2.3	.35	.19	230	60	9.8	5.6	119	2.0	1.1	.35
24	.34	2.0	.30	.19	150	480	9.0	5.3	43	1.8	1.0	2.2
25	.30	1.8	.25	.19	100	434	8.2	4.8	26	1.7	.85	1.8
26	.26	1.6	.23	.20	80	250	9.9	4.5	18	1.7	.73	1.4
27	.25	1.5	.22	.22	50	72	14	4.8	14	1.6	.69	1.7
28	.24	1.4	.22	.24	40	45	20	6.0	12	1.6	.57	1.3
29	.18	1.3	.22	.25	30	47	18	5.3	10	1.5	.46	1.1
30	.17	1.3	.21	.26	---	159	14	4.7	7.9	1.4	.35	.90
31	.17	---	.21	.27	---	215	---	4.4	---	1.2	.29	---
TOTAL	11.97	33.77	20.34	7.31	841.64	1963.2	1048.9	353.4	2750.0	112.4	29.21	17.56
MEAN	.39	1.13	.66	.24	29.0	63.3	35.0	11.4	91.7	3.63	.94	.59
MAX	.65	3.6	1.2	.28	230	480	170	39	502	7.4	1.8	2.2
MIN	.17	.23	.21	.19	.11	4.6	8.2	4.4	2.9	1.2	.29	.21
AC-FT	24	67	40	14	1670	3890	2080	701	5450	223	58	35

CAL YR 1983 TOTAL 2258.82 MEAN 6.19 MAX 240 MIN .00 AC-FT 4480
WTR YR 1984 TOTAL 7189.70 MEAN 19.6 MAX 502 MIN .11 AC-FT 14260

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06479640 HIDEWOOD CREEK NEAR ESTELLINE, SD

LOCATION.--Lat 44°36'42", long 96°54'17", in SW¼NW¼ sec.12, T.113 N , R.51 W., Hamlin County, Hydrologic Unit 10170202, on left bank at upstream side of highway bridge, 2.7 mi north of Estelline, 2.8 mi southeast of Dempster, and 4.7 mi upstream from mouth.

DRAINAGE AREA.--164 mi², approximately.

PERIOD OF RECORD.--October 1968 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,665 ft.

REMARKS.--Records good except those for winter period, Dec. 1 to Mar. 31, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--16 years, 24.2 ft³/s (17,530 acre-ft/yr); median of yearly mean discharges, 18 ft³/s (13,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,630 ft³/s Apr. 7, 1969 (gage height, 11.36 ft); maximum gage height, 11.55 ft Apr. 8, 1969 (backwater from collapsed bridge), no flow at times in 1969, 1971, 1974-77, 1981-83.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 300 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 25	1545	350	a*8.81	June 11	0345	658	7.25
Apr. 12	2200	395	6.45	June 15	2130	*1110	8.22
June 8	0615	405	6.49	June 23	0130	437	6.60

a Backwater from ice.
No flow Oct. 3-10, Dec. 14 to Jan. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.17	.05	2.6	.00	.26	14	281	68	25	91	13	1.8
2	.09	.05	2.1	.00	.32	13	262	63	24	81	12	1.7
3	.00	.10	1.7	.00	.40	13	260	62	21	76	13	1.6
4	.00	.22	1.3	.00	.50	13	222	60	20	70	15	1.9
5	.00	.26	1.0	.00	.80	13	214	58	24	64	13	1.4
6	.00	.40	.80	.01	1.2	13	198	60	32	58	13	1.1
7	.00	.35	.60	.05	1.5	13	185	95	161	52	13	1.4
8	.00	.34	.45	.10	2.0	13	178	111	353	47	12	1.5
9	.00	.40	.35	.15	2.5	13	178	84	189	44	11	1.8
10	.00	.40	.25	.17	3.5	13	161	70	274	42	9.1	1.9
11	.06	.40	.15	.18	4.5	13	168	63	480	41	8.0	1.8
12	.06	.50	.05	.18	6.0	13	309	74	277	39	7.6	1.7
13	.04	.66	.02	.17	7.5	13	353	81	235	38	6.6	1.7
14	.04	1.1	.00	.15	9.5	12	304	64	253	36	5.7	2.2
15	.36	1.2	.00	.10	12	12	248	57	700	34	6.3	2.1
16	.41	1.1	.00	.08	40	11	207	51	760	33	5.6	1.8
17	.21	.93	.00	.06	65	11	179	46	380	32	5.4	1.7
18	.13	.95	.00	.04	30	11	155	42	337	31	5.0	1.6
19	.39	2.0	.00	.02	15	12	136	40	248	30	4.1	1.6
20	2.4	5.5	.00	.02	12	14	120	38	238	28	3.9	1.5
21	1.1	6.0	.00	.02	9.8	16	109	37	267	27	5.5	1.3
22	.60	5.9	.00	.02	15	20	100	37	262	25	4.6	1.4
23	.30	8.7	.00	.02	35	35	90	36	353	23	3.5	2.8
24	.15	6.9	.00	.03	30	60	80	34	216	22	3.1	91
25	.03	5.8	.00	.04	23	260	73	32	178	20	3.2	28
26	.03	5.0	.00	.06	20	240	76	31	158	20	2.4	15
27	.03	4.3	.00	.08	18	180	92	31	140	18	2.8	12
28	.73	3.8	.00	.12	16	130	97	32	126	18	2.3	8.5
29	.35	3.5	.00	.17	15	90	82	32	113	17	2.2	6.9
30	.08	3.0	.00	.21	---	85	75	29	101	15	1.9	6.0
31	.05	---	.00	.23	---	200	---	27	---	14	1.6	---
TOTAL	7.81	69.81	11.37	2.48	396.28	1569	5192	1645	6945	1186	215.4	206.7
MEAN	.25	2.33	.37	.08	13.7	50.6	173	53.1	232	38.3	6.95	6.89
MAX	2.4	8.7	2.6	.23	65	260	353	111	760	91	15	91
MIN	.00	.05	.00	.00	.26	11	73	27	20	14	1.6	1.1
AC-FT	1	138	23	4.9	786	3110	10300	3260	13730	2350	427	410

CAL YR 1983 TOTAL 6742.45 MEAN 18.5 MAX 630 MIN .00 AC-FT 13370
WTR YR 1984 TOTAL 17446.85 MEAN 47.7 MAX 760 MIN .00 AC-FT 34610

06479980 MEDARY CREEK NEAR BROOKINGS, SD

LOCATION.--Lat 44°13'27", long 96°46'06", in NE¼NE¼NE¼ sec.25, T.109 N., R.50 W., Brookings County, Hydrologic Unit 10170202, on right bank 400 ft downstream from county highway bridge, 5.2 mi downstream from Deer Creek, 4.1 mi upstream from mouth, and 6.1 mi southeast of Brookings.

DRAINAGE AREA.--200 mi² (revised).

PERIOD OF RECORD.--October 1980 to current year.

REVISED RECORDS.--WRD SD-82-1: 1981.

GAGE.--Water-stage recorder. Datum of gage is 1,570.20 ft National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for winter period, Nov. 23 to Mar. 28, which are poor. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,590 ft³/s June 21, 1984 (gage height, 11.27 ft); no flow at times in 1981, 1982.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Nov. 22	0515	226	6.10	May 21	0015	280	6.32
Mar. 27	2200	1100	a9.83	May 30	0730	164	5.40
Apr. 13	0645	1570	9.97	June 9	2400	1760	10.17
May 8	1545	352	6.73	June 11	1230	1430	10.10
May 14	2300	379	6.87	June 18	1445	1680	10.40
May 18	2145	248	6.12	June 21	0745	*2590	*11.27

a Backwater from ice.
Minimum daily discharge, 7.0 ft³/s Oct. 1 and Sept. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.0	14	28	14	10	75	536	145	95	132	32	7.8
2	11	14	26	14	10	70	569	145	79	121	31	7.9
3	18	16	25	15	10	65	597	146	69	118	32	7.4
4	18	26	24	16	10	60	599	136	64	114	35	7.5
5	15	33	22	16	10	55	517	130	97	108	37	7.4
6	13	34	22	16	10	50	514	136	191	99	35	7.0
7	12	33	21	16	10	45	461	198	439	92	33	7.5
8	10	33	20	16	10	43	449	317	568	85	30	8.0
9	9.7	33	20	16	10	40	459	296	1220	79	28	8.0
10	9.5	33	19	16	10	38	417	192	1100	85	25	8.5
11	9.4	33	19	15	10	36	459	146	1250	100	24	9.0
12	9.7	32	18	14	11	35	978	120	1090	109	22	9.0
13	11	32	18	12	11	35	1290	133	1100	98	21	9.5
14	9.9	36	18	11	12	35	787	328	855	91	20	10
15	10	42	18	10	13	35	549	321	722	89	18	10
16	13	47	18	9.0	15	35	381	194	714	82	20	10
17	15	51	17	8.0	18	35	283	141	721	76	18	10
18	15	48	17	8.0	22	35	224	129	1250	70	16	9.5
19	15	59	16	8.0	27	35	191	187	971	64	12	9.0
20	17	101	15	8.0	33	35	167	218	1410	62	12	9.0
21	18	185	14	8.0	40	35	149	247	2310	59	13	9.0
22	18	215	14	8.5	50	38	136	156	1420	56	13	9.0
23	18	170	14	8.5	60	70	125	114	952	52	12	9.5
24	18	120	14	9.0	65	150	115	93	691	47	12	10
25	17	90	14	9.0	75	250	107	81	460	44	11	20
26	16	60	14	9.5	80	500	107	73	322	44	11	17
27	15	40	14	10	80	1000	117	73	239	42	12	14
28	15	35	14	10	80	850	131	102	199	40	12	13
29	15	30	14	10	80	652	157	135	172	38	9.3	11
30	14	30	14	10	---	594	154	159	150	36	8.6	9.1
31	14	---	14	10	---	527	---	128	---	34	8.1	---
TOTAL	426.2	1725	555	360.5	882	5558	11725	5119	20920	2366	623.0	293.6
MEAN	13.7	57.5	17.9	11.6	30.4	179	391	165	697	76.3	20.1	9.79
MAX	18	215	28	16	80	1000	1290	328	2310	132	37	20
MIN	7.0	14	14	8.0	10	35	107	73	64	34	8.1	7.0
AC-FT	84	3420	1100	715	1750	11020	23260	10150	41490	4690	1240	582

CAL YR 1983 TOTAL 30606.0 MEAN 83.9 MAX 1140 MIN 3.6 AC-FT 60710
WTR YR 1984 TOTAL 50553.3 MEAN 138 MAX 2310 MIN 7.0 AC-FT 100300

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06480000 BIG SIOUX RIVER NEAR BROOKINGS, SD

LOCATION.--Lat 44°10'48", long 96°44'55", in NW¼NW¼ sec.8, T.108 N., R.49 W., Moody County, Hydrologic Unit 10170203, on right bank 3 ft downstream from highway bridge, 2.2 mi downstream from Medary Creek and 9.5 mi southeast of Brookings.

DRAINAGE AREA.--3,898 mi^2, approximately, of which about 1,479 mi^2 is probably noncontributing (revised).

PERIOD OF RECORD.--August 1953 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,551.91 ft National Geodetic Vertical Datum of 1929. Prior to May 30, 1959, nonrecording gage at present site and datum.

REMARKS.--Records good except those for winter period, Nov. 25 to Mar. 23, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--31 years, 179 ft^3/s (129,700 acre-ft/yr); median of yearly mean discharges, 120 ft^3/s (86,900 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,900 ft^3/s Apr. 9, 1969 (gage height, 14.77 ft); no flow at times in 1956, 1959, 1976, 1977, 1982.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar. 30	1315	3690	11.00	May 15	1615	1100	7.38
Apr. 13	2215	5360	11.67	May 19	1445	1040	7.17
May 9	0900	1140	7.55	June 22	0430	*13700	*13.70

Minimum daily discharge, 17 ft^3/s Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	29	115	28	32	790	3060	948	456	1410	298	107
2	21	30	105	29	32	760	2920	930	401	1310	288	104
3	30	34	90	30	31	710	2890	885	364	1230	294	97
4	31	52	80	31	28	660	2800	842	344	1150	316	94
5	30	62	70	33	26	620	2450	803	396	1090	333	89
6	26	60	62	38	27	580	2120	782	538	1030	339	88
7	24	59	57	40	28	560	1830	876	779	974	328	88
8	23	57	52	44	29	530	1590	1030	1050	903	316	85
9	21	57	48	45	30	450	1620	1130	1380	835	297	82
10	21	57	46	45	31	400	1580	1070	2000	842	276	80
11	21	56	45	44	32	370	1570	986	2800	921	253	78
12	21	56	41	41	34	340	2500	890	3870	966	232	82
13	23	56	39	37	36	320	4730	818	4200	932	210	80
14	23	62	38	34	38	280	5160	891	4190	888	193	81
15	26	76	36	32	41	260	4250	1070	4100	850	183	80
16	28	84	35	31	44	250	3150	1040	3780	798	179	77
17	30	90	34	31	48	260	2170	893	3770	740	185	85
18	30	88	33	31	55	270	1690	763	4260	675	177	75
19	32	106	32	31	70	280	1460	981	4730	625	167	72
20	34	215	31	31	90	300	1310	917	6020	584	162	67
21	36	398	31	31	120	330	1180	840	9790	547	171	62
22	36	505	30	31	160	390	1070	692	12600	512	175	63
23	42	441	29	30	210	450	983	578	8960	468	171	58
24	36	292	29	30	280	548	913	517	6180	425	169	66
25	34	250	28	29	360	772	848	460	4630	399	164	105
26	33	210	28	29	480	1190	810	421	3490	391	157	170
27	31	190	28	29	600	1670	799	419	2560	378	150	152
28	30	170	27	29	650	2280	829	490	2030	371	138	128
29	30	145	27	30	700	3240	875	543	1740	354	127	114
30	29	130	27	31	---	3600	928	571	1540	334	117	118
31	29	---	27	32	---	3310	---	526	---	316	108	---
TOTAL	878	4117	1400	1037	4342	26770	60185	24602	102948	23248	6673	2727
MEAN	28.3	137	45.2	33.5	150	864	2006	794	3432	750	215	90.9
MAX	42	505	115	45	700	3600	5160	1130	12600	1410	339	170
MIN	17	29	27	28	26	250	799	419	344	316	108	58
AC-FT	174	8170	2780	2060	8610	53100	119400	48800	204200	46110	13240	5410

CAL YR 1983 TOTAL 105455 MEAN 289 MAX 3110 MIN 12 AC-FT 209200
WTR YR 1984 TOTAL 258927 MEAN 707 MAX 12600 MIN 17 AC-FT 513600

06480400 SPRING CREEK NEAR FLANDREAU, SD

LOCATION.--Lat 44°07'18", long 96°35'19", in SE¼NE¼NE¼ sec.33, T.108 N., R.47 W., Moody County, Hydrologic Unit 10170203, on left bank at downstream side of bridge on State Highway 13, 5.0 mi north of Flandreau, and 6.6 mi upstream from mouth.

DRAINAGE AREA.--63.2 mi^2 (revised).

PERIOD OF RECORD.--Oct. 1, 1982, to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,580 ft, from topographic map.

REMARKS.--Records good except those for winter period, Nov. 28 to Mar. 30, which are poor. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,030 ft^3/s June 20, 1984 (gage height, 15.72 ft); minimum daily discharge, 2.6 ft^3/s Feb. 3, 1983.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 250 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar. 30	0630	300	[a]12.20	June 12	0300	480	12.82
Apr. 12	0645	803	13.58	June 12	2300	447	12.70
June 8	0600	632	13.20	June 14	2215	338	12.28
June 8	1630	603	13.12	June 17	1530	1450	14.90
June 10	0645	616	13.18	June 20	0245	*2030	*15.72
June 10	1715	629	13.22	June 21	1515	731	13.53

[a] Backwater from ice.

Minimum daily discharge, 4.5 ft^3/s Feb. 4-8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	7.5	12	8.5	5.5	30	155	43	14	19	9.3	6.5
2	34	7.5	11	9.0	5.0	28	164	40	13	19	9.3	7.0
3	18	8.4	11	9.5	5.0	25	157	41	11	18	8.5	6.0
4	10	17	11	10	4.5	20	133	37	9.8	17	9.5	5.8
5	9.1	18	11	10	4.5	20	110	36	12	15	11	5.5
6	8.3	13	11	10	4.5	20	101	38	12	15	10	5.3
7	8.0	11	11	10	4.5	19	88	113	64	15	9.6	5.8
8	7.5	10	11	10	4.5	18	142	110	471	13	9.9	7.2
9	7.5	12	11	10	5.0	15	130	56	243	13	8.9	6.9
10	7.3	13	11	10	6.0	15	91	38	527	17	7.6	6.2
11	7.4	12	10	10	8.0	15	216	29	312	23	7.4	6.1
12	7.5	11	10	10	10	15	629	22	383	19	7.1	7.4
13	7.5	11	10	10	15	15	334	21	189	16	6.9	8.4
14	7.5	17	10	10	20	15	225	50	160	18	6.3	7.0
15	9.0	24	10	10	25	15	113	45	198	19	6.6	7.0
16	10	22	10	9.5	30	15	73	28	136	18	7.4	6.8
17	9.4	16	10	9.5	40	15	54	20	608	15	7.5	6.3
18	8.6	14	10	9.0	50	15	43	16	257	14	7.6	6.1
19	8.7	58	10	8.5	50	15	37	16	338	13	7.0	5.9
20	10	143	10	8.5	50	15	33	16	1420	13	6.4	5.7
21	11	92	10	8.0	40	15	29	17	519	13	7.0	5.3
22	11	61	10	8.0	30	20	27	15	375	11	7.4	5.2
23	9.7	41	9.0	7.5	40	50	24	13	155	9.9	6.3	5.3
24	9.3	27	8.0	7.5	60	100	23	11	80	9.4	6.0	7.3
25	8.7	21	7.0	7.0	50	200	21	11	55	9.4	5.9	9.2
26	8.5	19	6.5	7.0	45	170	21	11	41	10	5.9	8.3
27	8.3	13	6.5	6.5	40	160	31	13	33	10	5.7	7.6
28	8.0	12	6.5	6.5	35	150	40	27	28	9.8	5.6	7.5
29	7.5	12	7.0	6.0	32	180	40	31	25	9.3	5.3	7.4
30	7.5	12	7.5	6.0	---	250	42	23	21	8.8	4.8	7.0
31	7.5	---	8.0	5.5	---	158	---	18	---	8.3	5.0	---
TOTAL	320.3	755.4	297.0	267.5	719.0	1813	3326	1005	6709.8	437.9	228.7	199.0
MEAN	10.3	25.2	9.58	8.63	24.8	58.5	111	32.4	224	14.1	7.38	6.63
MAX	34	143	12	10	60	250	629	113	1420	23	11	9.2
MIN	7.3	7.5	6.5	5.5	4.5	15	21	11	9.8	8.3	4.8	5.2
AC-FT	63	1500	589	531	1430	3600	6600	1990	13310	869	454	395

CAL YR 1983	TOTAL	11940.6	MEAN	32.7	MAX	643	MIN	2.6	AC-FT	23680
WTR YR 1984	TOTAL	16078.6	MEAN	43.9	MAX	1420	MIN	4.5	AC-FT	31890

AVAILABLE

06480650 FLANDREAU CREEK ABOVE FLANDREAU, SD

LOCATION.--Lat 44°03'45", long 96°29'15", in SE¼NE¼NE¼ sec.20, T.107 N., R.47 W., Moody County, Hydrologic Unit 10170203, on right bank 500 ft downstream from county highway bridge, 5.9 mi upstream from mouth and 5.2 mi east of Flandreau.

DRAINAGE AREA.--100 mi².

PERIOD OF RECORD.--Oct. 1, 1981, to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,555 ft, from topographic map.

REMARKS.--Records good except those for winter period, Nov. 28 to Mar. 30, which are poor. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,650 ft³/s June 20, 1984 (gage height, 11.02 ft); no flow at times in 1982.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 29	2145	550	a7.95	May 14	1145	229	6.34
Mar. 31	2245	478	7.31	June 11	2230	604	7.85
Apr. 9	0115	222	6.25	June 17	1700	336	6.84
Apr. 12	1330	901	8.49	June 20	1000	*2650	*11.02
May 8	0200	351	6.94				

a Backwater from ice.
Minimum daily discharge, 5.0 ft³/s Jan. 22-31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	7.5	17	9.0	5.5	60	420	95	38	39	13	5.5
2	18	9.0	17	9.0	6.0	55	359	102	33	37	13	7.4
3	17	9.5	16	9.0	6.0	50	324	97	30	36	14	9.5
4	12	12	16	9.5	6.0	50	272	86	28	32	13	8.8
5	10	16	16	10	5.5	50	223	76	31	29	13	8.4
6	9.3	20	16	10	5.5	50	202	74	41	27	14	8.3
7	8.4	17	15	10	5.0	48	173	209	40	26	14	8.3
8	8.1	14	14	9.5	5.5	47	203	265	46	24	14	8.1
9	7.7	14	13	9.5	5.5	45	209	124	125	23	13	8.6
10	7.2	15	12	9.5	7.0	45	158	84	324	31	11	8.7
11	7.1	16	11	9.0	10	40	207	67	554	40	10	8.4
12	6.9	16	11	9.0	20	40	792	55	551	41	9.7	8.7
13	6.9	14	10	8.5	30	40	540	54	415	37	9.4	9.1
14	7.3	17	10	8.0	50	40	345	164	226	33	8.7	9.5
15	8.5	22	10	7.5	55	40	201	111	254	36	8.6	9.0
16	9.2	30	10	7.0	70	40	134	70	249	32	8.3	8.7
17	11	28	9.5	6.5	100	40	105	54	240	28	10	8.3
18	11	24	9.5	6.5	90	40	88	47	166	42	11	8.5
19	10	29	9.0	6.0	80	40	75	46	149	34	10	7.7
20	10	59	9.0	5.5	75	40	67	85	2050	26	9.4	7.6
21	11	100	9.0	5.5	65	40	62	79	1110	24	9.1	7.1
22	12	93	9.0	5.0	60	40	57	53	948	21	8.7	6.6
23	12	58	9.0	5.0	70	40	54	45	524	19	8.6	7.0
24	12	44	9.0	5.0	80	50	51	38	238	17	8.1	15
25	11	34	9.0	5.0	90	100	47	33	136	15	7.8	12
26	11	27	9.0	5.0	100	300	50	30	89	15	7.4	10
27	10	21	9.0	5.0	100	200	94	32	68	14	7.2	10
28	9.4	18	9.0	5.0	80	150	100	47	58	14	6.5	9.8
29	9.0	18	9.0	5.0	70	500	84	61	50	15	5.7	9.6
30	7.9	17	9.0	5.0	---	470	88	60	43	14	5.3	9.6
31	6.7	---	9.0	5.0	---	430	---	47	---	13	5.2	---
TOTAL	309.6	819.0	350.0	224.0	1352.5	3220	5784	2490	8854	834	306.7	263.8
MEAN	9.99	27.3	11.3	7.23	46.6	104	193	80.3	295	26.9	9.89	8.79
MAX	18	100	17	10	100	500	792	265	2050	42	14	15
MIN	6.7	7.5	9.0	5.0	5.0	40	47	30	28	13	5.2	5.5
AC-FT	61	1620	694	444	2680	6390	11470	4940	17560	1650	608	523

CAL YR 1983 TOTAL 23626.7 MEAN 64.7 MAX 1160 MIN 2.1 AC-FT 46860
WTR YR 1984 TOTAL 24807.6 MEAN 67.8 MAX 2050 MIN 5.0 AC-FT 49210

BEST COPY AVAILABLE

06481000 BIG SIOUX RIVER NEAR DELL RAPIDS, SD

LOCATION.--Lat 43°47'25", long 96°44'42", in NW¼NW¼ sec.29, T.104 N., R.49 W., Minnehaha County, Hydrologic Unit 10170203, on left bank at downstream side of highway bridge, 0.2 mi downstream from confluence of divided channels and 3.0 mi southwest of Dell Rapids.

DRAINAGE AREA.--4,483 mi², approximately, of which about 1,479 mi² is probably noncontributing (revised).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1948 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,455.99 ft National Geodetic Vertical Datum of 1929. Prior to Nov. 11, 1949, nonrecording gage and Nov. 11, 1949, to Sept. 30, 1951, water-stage recorder, at present site at datum 0.04 ft lower.

REMARKS.--Records good except those for winter period, Nov. 27 to Apr. 1, which are poor. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--36 years, 284 ft³/s (205,800 acre-ft/yr); median of yearly mean discharges, 200 ft³/s (145,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41,300 ft³/s Apr. 9, 1969 (gage height, 16.47 ft); no flow Aug. 25 to Oct. 17, 1976.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Apr. 1	0930	5800	a13.71	May 8	0045	2050	8.86
Apr. 15	2400	6330	12.87	June 23	0630	*17400	*15.20

a Backwater from ice.
Minimum daily discharge, 63 ft³/s Oct. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70	79	250	64	70	370	5500	1490	656	3100	427	189
2	72	78	230	64	70	470	5060	1440	598	2620	427	188
3	79	76	220	64	70	610	4870	1450	534	2210	499	185
4	88	78	210	64	72	780	4780	1400	484	1910	464	177
5	90	76	200	64	72	740	4510	1290	456	1690	422	173
6	86	76	190	64	72	640	4170	1230	448	1540	422	172
7	80	79	180	64	71	560	3830	1780	496	1410	421	170
8	78	111	180	64	70	510	3690	1960	1440	1290	419	169
9	80	110	170	64	70	460	3570	1780	1480	1190	399	168
10	76	109	170	64	71	420	3230	1630	2010	1150	383	166
11	65	111	165	64	74	390	3200	1530	2840	1180	367	165
12	63	109	160	64	76	350	4820	1390	3890	1100	349	165
13	64	107	160	64	78	330	5830	1240	4630	1130	331	160
14	65	105	155	65	81	310	6000	1100	4940	1200	319	156
15	70	105	150	65	84	290	6060	1120	5860	1110	311	156
16	70	125	145	65	88	280	6190	1240	6410	1040	298	155
17	73	139	140	65	94	260	5210	1280	6220	964	292	150
18	73	147	130	65	100	250	4200	1190	7050	885	286	149
19	79	171	125	65	115	250	3330	1070	7660	830	280	150
20	82	231	120	65	140	245	2680	1020	8820	777	267	146
21	82	429	115	65	130	240	2180	1130	13200	725	256	142
22	81	497	110	65	130	240	1840	1070	15000	679	247	135
23	86	518	105	65	135	240	1630	935	16500	632	246	132
24	86	576	100	65	155	240	1470	778	13400	592	251	130
25	85	518	95	66	180	300	1330	673	9940	554	251	128
26	87	425	90	68	210	500	1240	612	7800	533	243	132
27	88	350	85	68	240	1000	1180	586	6250	507	236	150
28	83	320	75	69	260	1700	1190	652	4990	499	226	192
29	81	300	73	70	290	2400	1220	683	4190	475	215	207
30	83	280	70	70	---	3600	1400	691	3580	458	202	201
31	81	---	67	70	---	5800	---	692	---	439	196	---
TOTAL	2426	6435	4435	2028	3368	24775	105410	36132	161772	34419	9952	4858
MEAN	78.3	215	143	65.4	116	799	3514	1166	5392	1110	321	162
MAX	90	576	250	70	290	5800	6190	1960	16500	3100	499	207
MIN	63	76	67	64	70	240	1180	586	448	439	196	128
AC-FT	481	12760	8800	4020	6680	49140	209100	71670	320900	68270	19740	9640

CAL YR 1983 TOTAL 224494 MEAN 615 MAX 5210 MIN 54 AC-FT 445300
WTR YR 1984 TOTAL 396010 MEAN 1082 MAX 16500 MIN 63 AC-FT 785500

06481000 BIG SIOUX RIVER NEAR DELL RAPIDS, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960-62, 1968 to Sept. 30, 1984 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1967 to September 1970, October 1973 to Sept. 30, 1984 (discontinued).
WATER TEMPERATURES: October 1967 to September 1971, October 1974 to September 1975, October 1979 to Sept. 30, 1984 (discontinued).
SUSPENDED SEDIMENT DISCHARGE: October 1967 to September 1976.

REMARKS.--There are many days of no samples during the year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,100 micromhos Jan. 27, 1977; minimum daily, 140 micromhos Apr. 9, 1969.
WATER TEMPERATURES: Maximum daily, 33.5°C July 7, 12, 16, 20, 1974; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 619 mg/L Apr. 19, 1974; minimum daily mean, 0 mg/L Aug. 25 to Sept. 30, 1976.
SEDIMENT LOADS: Maximum daily, 40,600 tons Apr. 9, 1969; minimum daily, 0 ton Aug. 8, 9, 14, Aug. 24 to Sept. 30, 1976.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum observed daily, 950 micromhos June 4, 6, Aug. 20; minimum observed daily, 450 micromhos Oct. 7.
WATER TEMPERATURES: Maximum observed daily, 29.0°C Aug. 6, 8, 13; minimum observed daily, 2.0°C Nov. 25, Dec. 9, Mar. 31.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE, AIR (DEG C)	TEMPERATURE (DEG C)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)
OCT										
24...	1225	84	820	8.0	14.0	10.0	410	190	90	44
NOV										
18...	1130	148	850	8.8	10.0	3.0	460	190	110	46
DEC										
15...	1145	152	1100	8.5	-12.0	.0	590	270	140	58
JAN										
16...	1255	66	1000	8.2	-12.0	.0	510	200	120	50
FEB										
13...	1335	78	1000	7.8	6.0	.0	520	230	130	48
MAR										
16...	1405	277	920	7.8	-3.0	.0	490	200	120	47
MAY										
04...	1030	1410	930	8.4	14.0	10.0	490	230	110	52
18...	1040	1200	750	8.5	25.5	19.0	420	180	92	45
JUN										
14...	1000	4780	605	7.9	20.5	20.0	300	120	69	30
AUG										
28...	1510	229	875	8.6	35.0	26.5	400	170	79	50
SEP										
25...	1640	117	810	--	6.5	10.0	350	160	62	48

DATE	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)
OCT									
24...	28	13	.6	5.7	218	190	26	.30	8.6
NOV									
18...	29	12	.6	5.9	275	200	27	.30	14
DEC									
15...	28	9	.5	5.6	316	270	24	.30	24
JAN									
16...	29	11	.6	5.1	302	210	29	.30	23
FEB									
13...	31	11	.6	5.6	297	220	29	.30	23
MAR									
16...	23	9	.5	6.7	297	230	19	.30	21
MAY									
04...	23	9	.5	7.2	259	260	17	.30	7.5
18...	21	10	.5	5.6	240	210	14	.30	4.6
JUN									
14...	14	9	.4	8.9	172	130	9.1	.30	19
AUG									
28...	32	14	.7	9.8	233	220	24	.30	12
SEP									
25...	32	16	.8	7.4	190	220	28	.20	.6

06481000 BIG SIOUX RIVER NEAR DELL RAPIDS, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)	BORON, DISSOLVED (UG/L AS B)
OCT									
24...	520	.71	119	1.1	.060	.090	.030	.09	100
NOV									
18...	600	.81	239	1.5	.140	.080	.070	.21	90
DEC									
15...	740	1.0	304	1.9	.170	.130	.130	.40	90
JAN									
16...	650	.88	115	3.4	.200	.130	.120	.37	90
FEB									
13...	670	.91	140	3.6	.230	.210	.150	.46	90
MAR									
16...	650	.88	483	1.9	.220	.190	.080	.25	70
MAY									
04...	630	.86	2410	1.0	.130	.060	.040	.12	70
18...	540	.73	1740	.50	.170	.070	.040	.12	70
JUN									
14...	380	.52	4960	2.1	.370	.310	.290	.89	100
AUG									
28...	570	.77	351	<.10	.290	.020	.020	.06	130
SEP									
25...	510	.70	162	.20	.160	.020	.010	.03	140

< Less than.

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	730	---				---	600	---	930	780	930	860
2	710	---				---	570	910	940	790	890	850
3	---	---				---	600	880	940	810	890	840
4	680	---				---	640	870	950	830	870	840
5	---	800				---	650	900	---	---	---	860
6	---	850				---	670	---	950	840	920	---
7	450	820				---	690	850	---	850	910	850
8	490	610				---	700	---	---	---	910	840
9	---	---				---	750	860	740	860	920	850
10	720	520				---	760	880	630	850	930	830
11	650	770				---	710	770	630	---	930	790
12	---	---				---	710	830	550	840	920	810
13	720	---				---	660	---	590	850	920	810
14	600	840				---	660	940	---	840	930	800
15	---	570				---	730	---	600	860	910	790
16	830	---				---	770	810	630	---	920	810
17	800	790				---	770	820	650	870	920	780
18	840	780				---	800	840	570	890	930	780
19	---	---				---	820	850	570	890	940	770
20	820	---				---	840	---	560	900	950	800
21	800	730				---	---	750	480	900	940	---
22	780	---				---	860	810	450	---	940	790
23	550	---				---	870	---	520	910	910	790
24	740	---				---	870	870	510	920	940	---
25	840	730				---	900	900	530	920	900	---
26	780	---				---	900	880	---	920	900	830
27	800	---				---	900	---	650	940	890	840
28	600	---				---	---	880	700	930	---	850
29	830	---				---	---	---	730	930	880	840
30	830	---				---	900	940	750	930	880	840
31	---	---				500	---	940	---	930	880	---

064810000 BIG SIOUX RIVER NEAR DELL RAPIDS, SD--Continued

TEMPERATURE, WATER (DEG C), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20.0	8.0	---			---	4.0	---	20.0	23.0	26.0	22.0
2	17.0	---	---			---	5.0	19.0	21.0	24.0	25.0	20.0
3	---	---	---			---	5.0	11.0	21.0	24.0	25.0	20.0
4	17.0	---	---			---	6.0	11.0	21.0	25.0	25.0	20.0
5	---	8.0	---			---	7.0	14.0	---	---	---	17.0
6	---	9.0	---			---	9.0	---	21.0	24.0	29.0	---
7	17.0	9.0	---			---	8.0	12.0	---	23.0	26.0	16.0
8	15.0	7.0	---			---	7.0	---	---	---	29.0	15.0
9	---	---	2.0			---	7.0	10.0	20.0	25.0	25.0	15.0
10	13.0	6.0	---			---	6.0	14.0	19.0	25.0	27.0	16.0
11	13.0	4.0	---			---	7.0	16.0	17.0	---	28.0	18.0
12	---	---	---			---	7.0	17.0	17.0	24.0	28.0	17.0
13	10.0	---	---			---	7.0	---	19.0	25.0	29.0	19.0
14	10.0	5.0	---			---	8.0	18.0	---	25.0	27.0	18.0
15	---	4.0	---			---	12.0	---	21.0	25.0	28.0	16.0
16	10.0	---	---			---	11.0	20.0	21.0	---	26.0	16.0
17	12.0	4.0	---			---	10.0	20.0	24.0	22.0	24.0	20.0
18	10.0	5.0	---			---	12.0	20.0	23.0	25.0	27.0	19.0
19	---	---	---			---	13.0	19.0	23.0	24.0	26.0	17.0
20	10.0	---	---			---	13.0	---	21.0	23.0	25.0	21.0
21	9.0	4.0	---			---	---	20.0	22.0	24.0	26.0	---
22	9.0	---	---			---	10.0	20.0	22.0	---	24.0	18.0
23	12.0	---	---			---	14.0	---	22.0	28.0	23.0	15.0
24	12.0	---	---			---	12.0	19.0	25.0	26.0	22.0	---
25	9.0	2.0	---			---	12.0	16.0	27.0	27.0	20.0	---
26	12.0	---	---			---	14.0	17.0	---	26.0	25.0	12.0
27	13.0	---	---			---	11.0	---	25.0	26.0	24.0	11.0
28	11.0	---	---			---	---	15.0	25.0	25.0	---	9.0
29	9.0	---	---			---	---	---	25.0	27.0	23.0	8.0
30	8.0	---	---			---	8.0	18.0	24.0	27.0	23.0	8.0
31	8.0	---	---			2.0	---	16.0	---	26.0	25.0	---

06481500 SKUNK CREEK AT SIOUX FALLS, SD

LOCATION.--Lat 43°32'01", long 96°47'26", in NW¼SW¼ sec.24, T.101 N., R.50 W., Minnehaha County, Hydrologic Unit 10170203, on right bank 5 ft downstream from bridge on Marion Road, 1.3 mi upstream from mouth, 1.8 mi downstream from small right-bank tributary, and 4.0 mi southwest of Sioux Falls.

DRAINAGE AREA.--622 mi², approximately, of which about 8.51 mi² is probably noncontributing (revised).

PERIOD OF RECORD.--May 1948 to current year. May 1948 to September 1971 (published as "near Sioux Falls").

GAGE.--Water-stage recorder. Datum of gage is 1,405.10 ft National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Prior to Oct. 24, 1949, nonrecording gage, and Oct. 24, 1949, to Apr. 28, 1972, water-stage recorder, both at site 1.9 mi upstream at datum 10.19 ft higher.

REMARKS.--Records good except those for winter period, Dec. 3 to Jan. 8, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--36 years, 61.6 ft³/s (44,630 acre-ft/yr); median of yearly mean discharges, 29 ft³/s (21,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,400 ft³/s June 17, 1957 (gage height, 17.78 ft), site and datum then in use, from rating curve extended above 8,100 ft³/s on basis of slope-area measurement of peak flow; no flow at times in many years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 26	1630	895	5.69	May 7	1015	1850	7.58
Mar. 28	1600	903	5.71	June 12	0100	3170	9.42
Apr. 4	0730	2470	8.50	June 15	0415	2870	9.07
Apr. 8	1245	1920	7.69	June 16	1845	4570	10.83
Apr. 12	--	5900	12.00	June 21	1915	*11000	*15.54
May 1	0115	1890	7.64				

Minimum daily discharge, 8.5 ft³/s Oct. 1, 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.5	20	14	19	19	61	1020	1590	197	991	113	24
2	8.5	20	13	18	19	73	1150	1130	179	937	105	25
3	8.8	21	12	17	14	81	1740	996	154	865	103	24
4	16	24	12	17	16	73	2130	925	151	802	102	24
5	14	24	13	17	15	59	1760	845	199	734	98	21
6	12	24	13	17	14	53	1560	867	385	692	96	21
7	14	28	13	17	15	49	1440	1650	296	634	94	23
8	13	27	14	17	17	48	1820	1260	360	596	98	25
9	13	31	14	17	18	48	1630	925	516	576	97	24
10	13	27	15	17	19	53	1320	764	606	583	91	24
11	15	24	15	18	22	59	2000	679	901	582	87	23
12	13	28	15	18	25	63	4000	597	2660	507	80	37
13	13	28	14	18	23	61	3770	549	1620	454	77	26
14	14	26	14	19	24	58	2880	495	1610	419	74	24
15	14	29	14	18	29	54	2190	436	2570	408	72	24
16	15	29	15	18	33	51	1710	380	3180	373	69	22
17	12	30	17	18	37	51	1370	349	3250	377	68	20
18	14	30	20	19	37	51	1190	315	2250	347	67	20
19	16	46	21	19	27	49	1090	290	1680	310	63	19
20	20	63	20	19	29	50	1000	277	3370	287	57	18
21	20	69	19	19	29	52	939	256	7570	261	59	17
22	20	65	21	21	27	58	990	253	6990	230	50	16
23	21	36	25	22	27	72	955	235	4110	203	46	16
24	21	50	22	23	27	121	863	211	2910	176	41	16
25	22	43	19	23	28	277	796	193	2280	162	39	19
26	19	35	20	22	33	793	806	178	1890	185	38	17
27	18	26	20	19	35	745	800	184	1580	205	37	17
28	17	15	19	19	34	806	814	353	1350	169	38	17
29	17	19	18	20	40	763	831	388	1210	145	37	17
30	15	17	20	18	---	1070	1330	305	1080	134	29	17
31	17	---	20	19	---	1100	---	249	---	119	27	---
TOTAL	473.8	954	521	582	732	7002	45894	18124	57104	13463	2152	637
MEAN	15.3	31.8	16.8	18.8	25.2	226	1530	585	1903	434	69.4	21.2
MAX	22	69	25	23	40	1100	4000	1650	7570	991	113	37
MIN	8.5	15	12	17	14	48	796	178	151	119	27	16
AC-FT	940	1890	1030	1150	1450	13890	91030	35950	113300	26700	4270	1260

CAL YR 1983 TOTAL 93891.7 MEAN 257 MAX 2860 MIN 7.7 AC-FT 186200
WTR YR 1984 TOTAL 147638.8 MEAN 403 MAX 7570 MIN 8.5 AC-FT 292800

06482020 BIG SIOUX RIVER AT NORTH CLIFF AVENUE, AT SIOUX FALLS, SD

LOCATION.--Lat 43°34'01", long 96°42'39", in SW¼NW¼ sec.10, T.101 N., R.49 W., Minnehaha County, Hydrologic Unit 10170203, on right bank 20 ft downstream from bridge on North Cliff Avenue and 4.1 mi upstream from Slip Up Creek.

DRAINAGE AREA.--5,216 mi², approximately, of which about 1,487 mi² is probably noncontributing (revised).

PERIOD OF RECORD.--March 1962 to September 1971 (gage heights and discharge measurements only in files of U.S. Army Corps of Engineers). October 1971 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,294.18 ft National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Dec. 15, 1971, nonrecording gage 20 ft upstream at same datum.

REMARKS.--Records good except those for winter period, Nov. 29 to Jan. 10, which are poor. National Weather Service gage-height telemeter and U.S. Army Corps of Engineers satellite data-collection platform at station.

AVERAGE DISCHARGE.--13 years, 431 ft³/s (312,300 acre-ft/yr); median of yearly mean discharges, 240 ft³/s (174,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,600 ft³/s June 22, 1984 (gage height, 25.40 ft); minimum daily discharge, 0.81 ft³/s Feb. 13, 1982.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 10, 1969, reached a stage of 27.45 ft, discharge, 40,700 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 5	1745	1010	7.73	May 1	1000	3420	13.74
Apr. 1	2115	8540	19.31	May 7	2245	3590	14.00
Apr. 12	2315	10900	20.56	June 22	0830	*21600	*25.40

Minimum daily discharge, 65 ft³/s Feb. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70	96	170	90	84	820	6630	3310	1160	4330	708	247
2	75	92	170	105	86	880	7180	2810	1080	3800	676	240
3	84	95	165	105	87	939	6420	2560	992	3310	687	232
4	92	103	165	105	89	953	6830	2450	952	2910	737	227
5	95	104	165	115	65	971	6160	2280	881	2620	614	217
6	102	112	165	115	77	895	5660	2220	1070	2380	602	213
7	92	120	165	115	74	746	5290	3120	1020	2170	627	216
8	84	140	160	115	73	666	5300	3460	1350	2030	621	216
9	84	158	160	115	73	584	5150	2950	1960	1880	566	208
10	88	147	160	110	79	498	4790	2590	2000	1820	546	207
11	85	142	160	106	90	449	4870	2350	3170	1870	536	206
12	77	153	155	111	113	428	8280	2150	5380	1780	495	326
13	76	161	155	102	102	388	9880	2000	5820	1710	476	220
14	77	163	155	99	109	385	8660	1820	5850	1760	433	197
15	95	152	150	98	134	390	7890	1670	7080	1720	414	193
16	86	153	150	95	164	376	7110	1700	7470	1630	408	190
17	85	166	150	95	155	364	6680	1730	9210	1570	428	185
18	87	184	150	90	157	365	5790	1710	8030	1470	410	185
19	102	152	150	86	174	357	4810	1620	7720	1350	388	195
20	101	338	150	80	240	360	4100	1510	9510	1270	368	178
21	98	455	148	81	243	365	3510	1520	13900	1180	372	177
22	102	641	146	84	216	389	3160	1480	20700	1110	340	166
23	97	627	132	84	224	410	2830	1420	18300	1020	319	164
24	111	469	130	85	245	488	2530	1290	16800	962	318	163
25	102	455	130	83	269	662	2310	1190	14800	920	313	148
26	97	407	130	83	354	1320	2250	1090	12000	938	311	143
27	99	327	120	82	546	2170	2170	1150	9730	923	301	146
28	96	278	110	84	707	2720	2110	1280	7630	874	286	150
29	90	250	100	86	757	3110	2160	1330	5900	816	277	175
30	92	170	95	84	---	3750	2650	1270	4940	768	263	200
31	94	---	90	85	---	4580	---	1210	---	748	254	---
TOTAL	2815	7010	4501	2973	5786	31778	153160	60240	206405	53639	14094	5930
MEAN	90.8	234	145	95.9	200	1025	5105	1943	6880	1730	455	198
MAX	111	641	170	115	757	4580	9880	3460	20700	4330	737	326
MIN	70	92	90	80	65	357	2110	1090	881	748	254	143
AC-FT	558	13900	8930	5900	11480	63030	303800	119500	409400	106400	27960	11760

CAL YR 1983 TOTAL 338943 MEAN 929 MAX 8440 MIN 69 AC-FT 672300
WTR YR 1984 TOTAL 548331 MEAN 1498 MAX 20700 MIN 65 AC-FT 1088000

06482610 SPLIT ROCK CREEK AT CORSON, SD

LOCATION.--Lat 43°36'59", long 96°33'54", in NE¼NW¼ sec.26, T.102 N., R.48 W., Minnehaha County, Hydrologic Unit 10170203, on left bank 6 ft downstream from highway bridge, 0.3 mi east of Corson and 3.4 mi upstream from mouth.

DRAINAGE AREA.--464 mi^2, approximately (revised).

PERIOD OF RECORD.--October 1965 to current year. February 1951 to September 1965 (gage heights and discharge measurements only in files of U.S. Army Corps of Engineers).

GAGE.--Water-stage recorder. Datum of gage is 1,304.22 ft National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Aug. 15, 1964, nonrecording gage at datum 0.15 ft higher and Aug. 15, 1964, to Sept. 3, 1970, nonrecording gage at present site and datum.

REMARKS.--Records good except those for winter period, Nov. 26 to Mar. 28, and period of no gage-height record, July 11 to Aug. 30, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--19 years, 92.6 ft^3/s (67,090 acre-ft/yr); median of yearly mean discharges, 53 ft^3/s (28,400 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,800 ft^3/s Apr. 8, 1969 (gage height, 15.00 ft); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1951, 15.41 ft June 17, 1957, discharge, 19,300 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar. 30	1530	3060	8.33	May 7	0730	2960	8.21
Apr. 4	0115	2570	7.70	June 12	1200	3860	9.74
Apr. 8	1145	1740	6.47	June 14	1900	3420	9.24
Apr. 12	1130	4780	10.18	June 17	1345	3680	9.51
May 2	1015	1600	6.25	June 21	1845	*9020	*14.08

Minimum daily discharge, 18 ft^3/s Feb. 3, 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	25	44	24	25	95	1740	612	181	227	75	29
2	25	25	41	23	25	130	2010	1400	163	202	72	29
3	22	32	39	22	18	135	2230	977	143	185	70	28
4	21	47	36	21	20	105	2310	709	133	167	67	28
5	27	54	34	21	19	92	1850	576	140	155	66	27
6	29	47	32	21	19	90	1410	585	133	151	66	27
7	28	41	30	21	18	100	1170	2590	125	143	67	26
8	25	41	29	22	21	110	1640	1750	128	144	68	26
9	21	43	27	22	22	125	1440	1440	133	149	64	27
10	21	44	26	23	24	130	1190	869	170	156	62	26
11	22	45	25	24	28	130	1500	557	500	170	59	26
12	22	43	24	24	32	130	4360	406	2870	170	56	49
13	21	43	24	23	34	130	4120	331	1800	160	54	60
14	22	48	23	24	37	130	2570	277	2030	150	52	48
15	24	52	22	23	43	130	1640	238	1910	140	50	40
16	25	51	21	23	48	130	1060	212	1650	130	48	33
17	28	49	22	24	54	130	706	207	2430	120	47	28
18	29	49	25	24	57	130	518	198	2230	115	45	26
19	29	67	25	24	52	130	408	238	1600	110	44	24
20	31	137	25	24	42	130	339	186	5050	105	42	23
21	33	105	27	25	42	130	360	164	6700	100	42	23
22	34	90	29	26	42	130	370	156	7320	95	39	23
23	31	105	32	28	40	135	360	145	4040	90	38	25
24	30	95	28	29	42	150	360	137	2360	87	36	27
25	29	73	26	29	44	180	360	128	1440	80	35	28
26	29	65	26	27	47	500	350	119	873	90	34	28
27	29	58	26	25	50	1100	337	132	562	96	32	28
28	27	56	24	24	54	2100	345	295	423	90	31	27
29	27	52	23	25	64	2340	372	267	334	85	30	29
30	25	48	24	23	---	2650	344	212	271	81	30	29
31	25	---	26	24	---	2070	---	196	---	78	30	---
TOTAL	817	1730	865	742	1063	13897	37769	16309	47842	4021	1551	897
MEAN	26.4	57.7	27.9	23.9	36.7	448	1259	526	1595	130	50.0	29.9
MAX	34	137	44	29	64	2650	4360	2590	7320	227	75	60
MIN	21	25	21	21	18	90	337	119	125	78	30	23
AC-FT	162	3430	1720	1470	2110	27560	74910	32350	94890	7980	3080	1780

CAL YR 1983 TOTAL 97550 MEAN 267 MAX 3300 MIN 20 AC-FT 193500
WTR YR 1984 TOTAL 127503 MEAN 348 MAX 7320 MIN 18 AC-FT 252900

06482848 BEAVER CREEK AT CANTON, SD

LOCATION.--Lat 43°17'12", long 96°35'46", in SW¼SW¼SE¼ sec.23, T.98 N., R.49 W., Lincoln County, Hydrologic Unit 10170203, on left bank about 1,000 ft downstream from county highway bridge, 1.0 mi southwest of Canton and 2.2 mi upstream from mouth.

DRAINAGE AREA.--124 mi² (revised).

PERIOD OF RECORD.--Oct. 1, 1982, to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,225 ft, from topographic map.

REMARKS.--Records good except those for winter period and/or backwater from beaver dam, Oct. 1 to Mar. 27, which are poor. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,570 ft³/s June 17, 1984 (gage height, 13.72 ft); maximum gage height, 14.61 ft June 20, 1983; minimum daily discharge, 3.4 ft³/s Sept. 4, 1983.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 300 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 28	2015	722	8.54	May 7	0400	736	8.52
Apr. 3	2345	773	12.65	June 12	1045	1860	11.86
Apr. 8	1345	538	7.57	June 17	1230	*2570	*13.72
Apr. 11	2400	1870	12.65	June 21	2030	2290	13.17
Apr. 30	2200	842	9.11				

Minimum daily discharge, 5.0 ft³/s Oct. 28-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.5	6.0	11	7.0	6.5	19	341	645	24	47	12	5.8
2	7.0	6.5	11	7.0	6.5	18	283	480	20	40	11	6.6
3	7.0	6.5	10	7.0	6.5	17	515	294	15	34	11	6.7
4	7.0	6.5	10	7.0	6.5	16	633	204	16	28	11	5.9
5	7.0	6.5	10	7.0	6.5	15	484	179	153	26	11	5.4
6	7.0	6.5	10	7.0	6.5	15	304	216	60	28	11	6.1
7	7.0	6.5	10	7.0	6.5	15	244	565	35	27	10	6.3
8	7.0	6.5	10	7.0	6.5	15	470	434	26	30	10	6.7
9	7.0	7.0	10	7.0	7.0	15	389	265	18	30	10	6.6
10	7.0	7.5	10	7.0	7.0	15	267	146	99	28	10	6.5
11	7.0	7.5	10	6.8	8.0	15	509	110	95	29	9.0	6.6
12	7.0	7.5	10	6.8	9.0	16	975	94	1240	27	9.0	7.3
13	7.0	7.0	10	6.8	10	17	877	95	953	25	9.0	7.1
14	7.0	7.0	9.0	6.8	12	18	844	70	904	24	8.8	6.8
15	7.0	7.0	9.0	6.8	20	17	531	49	888	24	8.4	6.8
16	7.0	6.5	9.0	6.8	18	16	328	36	1540	22	9.1	6.7
17	7.0	6.5	9.0	6.8	16	15	216	29	2280	20	9.4	6.6
18	7.0	6.5	9.0	6.8	16	14	159	25	1490	19	9.5	6.6
19	10	15	9.0	6.8	15	14	130	22	791	17	8.2	6.6
20	11	20	9.0	6.5	17	13	109	20	638	18	7.8	6.6
21	10	18	9.0	6.5	19	15	96	17	1110	17	8.9	6.6
22	9.0	15	9.0	6.5	25	20	184	16	1560	16	8.4	6.6
23	8.0	14	9.0	6.5	30	25	161	14	1210	15	7.6	6.9
24	7.0	14	8.0	6.5	28	35	113	13	704	15	7.2	7.0
25	6.5	14	8.0	6.5	25	50	83	12	411	14	7.6	7.1
26	6.0	13	8.0	6.5	23	100	107	12	280	24	7.7	7.1
27	5.5	13	8.0	6.5	21	500	169	22	171	18	7.6	7.1
28	5.0	11	8.0	6.5	19	654	115	68	111	16	7.3	7.2
29	5.0	11	8.0	6.5	19	538	91	50	80	16	6.4	7.3
30	5.0	11	7.0	6.5	---	492	366	45	59	12	6.3	7.2
31	5.5	---	7.0	6.5	---	420	---	35	---	12	5.6	---
TOTAL	220.0	290.5	284.0	209.2	416.0	3164	10093	4282	16981	718	275.8	200.4
MEAN	7.10	9.68	9.16	6.75	14.3	102	336	138	566	23.2	8.90	6.68
MAX	11	20	11	7.0	30	654	975	645	2280	47	12	7.3
MIN	5.0	6.0	7.0	6.5	6.5	13	83	12	15	12	5.6	5.4
AC-FT	43	576	563	415	825	6280	20020	8490	33680	1420	547	397

CAL YR 1983 TOTAL 36226.2 MEAN 99.2 MAX 1400 MIN 3.4 AC-FT 71850
WTR YR 1984 TOTAL 37133.9 MEAN 101 MAX 2280 MIN 5.0 AC-FT 73660

06485500 BIG SIOUX RIVER AT AKRON, IA

LOCATION.--Lat 42°49'42", long 96°33'45", in NW¼SW¼ sec.31, T.93 N., R.48 W., Plymouth County, Hydrologic Unit 10170203, on left bank at west edge of Akron, 0.6 mi downstream from bridge on State Highway 48, and 2.3 mi upstream from Union Creek.

DRAINAGE AREA.--8,424 mi², approximately, of which about 1,487 mi² is probably noncontributing (revised).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1928 to current year.

REVISED RECORDS.--WSP 1309: 1929(M), 1931-33(M), 1936(M), 1938(M), 1940(M). WSP 1389: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,118.90 ft National Geodetic Vertical Datum of 1929. Prior to Dec. 3, 1934, nonrecording gage at bridge 300 ft upstream at same datum.

REMARKS.--Records good except those for winter period, Dec. 1 to Feb. 28, which are poor. Corps of Engineers satellite data-collection platform at station.

AVERAGE DISCHARGE.--56 years, 961 ft³/s (696,200 acre-ft/yr); median of yearly mean discharges, 740 ft³/s (536,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 80,800 ft³/s Apr. 9, 1969 (gage height, 22.99 ft); minimum daily, 4.0 ft³/s Jan. 17, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Feb. 19	0915	4900	a14.33	May 30	0745	4810	13.52
Apr. 14	1815	37300	21.52	June 19	1000	34500	21.24
May 3	1845	11600	17.40	June 23	1715	*52200	*22.27
May 9	2400	15100	18.63				

a Backwater from ice.
Minimum daily discharge, 430 ft³/s Dec. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	591	546	480	480	450	3160	12600	8870	4030	11100	1940	855
2	585	546	470	480	460	2400	12500	10100	3660	9710	1900	830
3	595	555	460	470	470	2500	13100	11300	3410	8590	1860	804
4	573	614	450	470	480	2590	15700	10800	3210	7620	1820	784
5	561	747	440	470	480	2610	18400	9350	3170	6690	1850	766
6	545	743	430	480	480	2150	18500	8600	3720	5680	1890	753
7	546	717	450	490	470	2230	16900	9590	3650	5150	1770	746
8	546	695	480	500	460	2220	15500	11600	5130	4820	1700	739
9	542	686	510	500	460	2200	14700	14200	4300	5020	1680	733
10	541	697	530	500	450	2100	15100	14000	4280	4770	1630	727
11	555	735	540	500	460	2100	15300	10700	4890	4440	1570	726
12	566	725	550	500	500	2050	15000	8720	8150	4290	1510	720
13	560	722	560	480	750	2000	18000	7540	11100	4260	1450	732
14	560	730	550	460	1100	2000	33300	6520	14600	4090	1400	769
15	569	745	540	450	1600	1970	31800	5560	16600	3990	1340	793
16	563	740	530	440	2000	1900	19300	5050	17400	3980	1290	756
17	563	744	520	440	3000	1810	15200	4700	17500	3870	1260	732
18	566	753	510	450	4000	1840	13000	4540	20700	3710	1250	713
19	579	800	500	450	4800	1470	11700	4440	32100	3490	1240	699
20	598	1240	500	450	3300	1620	10700	4270	24900	3290	1220	676
21	604	1730	500	450	2900	1640	9630	4100	18600	3120	1190	657
22	618	1820	500	450	2700	1740	9010	3910	24200	2970	1170	641
23	625	1780	500	450	2800	2090	8640	3710	49000	2820	1170	630
24	618	1640	490	450	2900	2940	7930	3610	45300	2680	1160	621
25	609	1520	490	450	2800	5030	7040	3470	37200	2570	1100	612
26	599	1430	490	450	2800	7830	6960	3280	28100	2510	1050	603
27	597	1070	490	450	3000	11300	7880	3130	20400	2530	1020	597
28	590	554	490	450	2900	13900	8190	4220	17400	2520	996	599
29	568	511	490	450	2900	13700	8390	4760	14900	2510	965	601
30	556	490	480	450	---	13000	8140	4790	12900	2450	928	603
31	548	---	480	450	---	12700	---	4500	---	2020	887	---
TOTAL	17836	27025	15400	14410	51870	128790	418110	213930	474500	137260	43206	21217
MEAN	575	901	497	465	1789	4155	13940	6901	15820	4428	1394	707
MAX	625	1820	560	500	4800	13900	33300	14200	49000	11100	1940	855
MIN	541	490	430	440	450	1470	6960	3130	3170	2020	887	597
AC-FT	3538	53600	30550	28580	102900	255500	829300	424300	941200	272300	85700	42080

CAL YR 1983 TOTAL 1223332 MEAN 3352 MAX 27700 MIN 430 AC-FT 2426000
WTR YR 1984 TOTAL 1563554 MEAN 4272 MAX 49000 MIN 430 AC-FT 3101000

BEST COPY AVAILABLE

06485500 BIG SIOUX RIVER AT AKRON, IA--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1967 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to September 1981.
WATER TEMPERATURES: October 1974 to September 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,310 micromhos Jan. 20, 1977; minimum daily, 260 micromhos Mar. 20, 23, 1978.
WATER TEMPERATURES: Maximum daily, 31.0°C Feb. 19, 1975, July 23, 1976, July 11, 1981; minimum daily, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE, AIR (DEG C)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
NOV 17...	1400	708	1000	8.6	6.0	5.0	9.3	728	--	--	K750	2800
FEB 14...	1100	1100	650	7.9	8.0	1.0	80	730	--	--	K14000	>10000
MAY 17...	1110	4670	970	8.5	21.0	18.0	39	--	--	--	K180	2300
AUG 14...	0935	1400	870	8.4	29.0	25.5	32	739	--	--	980	1100

DATE	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
NOV 17...	490	202	120	47	33	13	.7	5.4	292	220	37	.40
FEB 14...	300	116	77	27	19	12	.5	9.8	188	120	26	.30
MAY 17...	480	208	110	49	26	10	.5	5.5	270	220	24	1.0
AUG 14...	420	194	92	47	32	14	.7	6.6	230	200	33	.40

DATE	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS NH4)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)	PHOSPHORUS, DISSOLVED (MG/L AS P)
NOV 17...	14	690	650	.94	1320	6.0	.100	.13	1.8	.370	1.1	.220
FEB 14...	12	428	410	.58	1270	5.5	2.90	3.7	6.5	1.00	3.1	.930
MAY 17...	7.8	645	610	.88	8130	5.4	.090	.12	2.0	.300	.92	.110
AUG 14...	13	598	560	.81	2260	2.9	.210	.27	2.4	.290	--	.040

> More than.
K Non-ideal colony count.

06485500 BIG SIOUX RIVER AT AKRON, IA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)
NOV 17...	.210	<10	3	81	<.5	<1	<1	<3	<1	6	1	53
FEB 14...	.930	50	6	70	<.5	<1	<1	<3	9	<3	<1	30
MAY 17...	.050	10	1	110	<1.0	<1	<1	<3	2	8	<1	43
AUG 14...	.040	10	3	100	1.0	<1	5	<3	3	6	<1	47

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, DIS-SOLVED (UG/L AS ZN)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 17...	31	<.1	<10	4	4	<1	460	<6	10	--	--	--
FEB 14...	120	<.1	<10	3	3	<1	280	<6	16	298	885	100
MAY 17...	18	<.1	<10	4	3	<1	430	<6	13	362	4560	93
AUG 14...	7	.2	<10	6	5	<1	420	6	11	173	654	100

< Less than.

06485696 BRULE CREEK NEAR ELK POINT, SD

LOCATION.--Lat 42°48'32", long 96°41'11", in SW¼SW¼ sec.6, T.92 N., R.49 W., Union County, Hydrologic Unit 10170203, on right bank 10 ft upstream from county highway bridge, 8.8 mi upstream from mouth, and 8.5 mi north of Elk Point.

DRAINAGE AREA.--204 mi² (revised).

PERIOD OF RECORD.--Oct. 1, 1982, to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,150 ft, from topographic map.

REMARKS.--Records good except those for winter period, Nov. 24 to Mar. 27, which are poor. Several observations of specific conductance and water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,290 ft³/s June 28, 1983 (gage height, 22.39 ft); minimum daily discharge, 8.0. ft³/s Dec. 15-17, 1982.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage height (ft)	Date	Time	Discharge (ft³/s)	Gage height (ft)
Mar. 26	0915	1400	a14.51	May 7	0400	1340	13.10
Apr. 3	2400	1090	11.99	May 28	1100	598	9.37
Apr. 8	1800	1100	12.07	June 8	--	580	9.27
Apr. 13	0245	2440	16.85	June 13	2230	593	9.38
Apr. 22	2015	753	10.32	June 16	1300	1420	13.48
Apr. 26	0600	1580	14.13	June 18	1645	1300	12.95
Apr. 30	2330	944	11.27	June 21	2300	*3250	*18.51

a Backwater from ice.
Minimum daily discharge, 13 ft³/s Oct. 8-10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	16	30	17	24	64	395	864	144	121	42	17
2	18	17	25	17	24	60	383	532	127	113	40	17
3	16	18	25	17	25	60	857	395	120	107	41	17
4	14	20	25	18	25	55	923	313	111	95	38	17
5	14	20	25	19	25	45	486	296	128	91	36	16
6	14	19	25	20	22	40	345	476	145	90	37	16
7	14	19	25	20	24	40	461	1270	113	86	34	16
8	13	18	25	20	24	40	974	649	300	80	34	17
9	13	21	25	20	25	40	778	327	500	138	36	17
10	13	24	25	20	26	40	413	265	400	117	32	17
11	14	29	24	20	28	43	475	239	300	114	30	17
12	17	24	24	20	30	45	1880	253	300	94	29	18
13	17	23	24	20	35	47	1990	206	572	83	28	18
14	15	28	24	20	40	50	887	168	414	77	27	17
15	16	32	24	20	45	56	494	143	230	107	25	17
16	16	29	24	20	50	50	353	130	883	97	25	16
17	16	25	24	20	55	50	293	123	796	78	25	16
18	16	24	22	20	60	50	261	121	1220	79	26	16
19	17	37	22	20	70	50	236	123	857	65	26	16
20	19	188	21	20	75	55	211	117	1500	62	25	16
21	20	140	20	20	80	60	206	104	2080	60	24	15
22	19	68	19	20	90	80	563	100	1910	53	24	15
23	18	50	18	20	100	100	583	101	1300	48	22	15
24	18	45	18	21	100	250	322	94	575	45	20	15
25	17	40	18	21	90	700	245	96	312	43	21	16
26	17	35	17	21	80	1250	961	103	249	65	21	16
27	17	35	17	22	70	1000	597	162	183	97	20	17
28	16	30	17	22	65	951	367	539	157	66	19	17
29	16	30	17	23	65	637	279	513	140	55	18	18
30	16	30	17	23	---	522	678	244	132	48	17	18
31	16	---	17	24	---	460	---	173	---	45	17	---
TOTAL	502	1134	683	625	1472	6990	17896	9239	16198	2519	859	496
MEAN	16.2	37.8	22.0	20.2	50.8	225	597	298	540	81.3	27.7	16.5
MAX	20	188	30	24	100	1250	1990	1270	2080	138	42	18
MIN	13	16	17	17	22	40	206	94	111	43	17	15
AC-FT	99	2250	1350	1240	2920	13860	35500	18330	32130	5000	1700	984

CAL YR 1983	TOTAL	54431	MEAN	149	MAX	5520	MIN	10	AC-FT	108000
WTR YR 1984	TOTAL	58613	MEAN	160	MAX	2080	MIN	13	AC-FT	116300

06486000 MISSOURI RIVER AT SIOUX CITY, IA

LOCATION.--Lat 42°29'09", long 96°24'49", in NW¼SE¼ sec.16, T.29 N., R.9 E., sixth principal meridian, Dakota County, Nebraska, Hydrologic Unit 10230001, on right bank on upstream side of bridge on U.S. Highway 20 and 77 at South Sioux City, Nebraska, 1.9 mi downstream from Big Sioux River, and at mile 732.3. Prior to Jan. 31, 1981, at site 227 ft downstream.

DRAINAGE AREA.--314,600 mi², approximately.

PERIOD OF RECORD.--October 1897 to current year in reports of Geological Survey. Prior to October 1928 and October 1931 to September 1938, monthly discharges only, published in WSP 1310. January 1879 to December 1890 (monthly discharges only) in House Document 238, 73rd Congress, 2d session, Missouri River. Gage-height records collected in this vicinity September 1878 to December 1899 are contained in reports of Missouri River Commission and since July 1889 are contained in reports of U.S. Weather Bureau.

REVISED RECORDS.--WSP 716: 1929-30. WSP 876: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,056.98 ft National Geodetic Vertical Datum of 1929. Sept. 2, 1878, to Dec. 31, 1905, nonrecording gages at various locations within 1.7 mi of present site and at various datums. Jan. 1, 1906, to Feb. 14, 1935, nonrecording gage, and Feb. 15, 1935, to Sept. 30, 1969, water-stage recorder at site 227 ft downstream at datum 19.98 ft higher, and Oct. 1, 1969, to Sept. 30, 1970, at datum 20.00 ft higher. Oct. 1, 1970, to Jan. 30, 1981, water-stage recorder at site 227 ft downstream at present datum.

REMARKS.--Records good. Flow regulated by upstream main-stem reservoirs. National Weather Service gage-height telemeter at station. Corps of Engineers rain-gage and satellite data-collection platform at station. Water-quality records published in WRD IA-82-1.

AVERAGE DISCHARGE.--87 years, 32,040 ft³/s (23,210,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 441,000 ft³/s Apr. 14, 1952 (gage height, 24.28 ft), datum then in use; minimum, 2,500 ft³/s Dec. 29, 1941; minimum gage height, 9.00 ft Jan. 8, 1980, based on gage readings at site 14 mi downstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 104,000 ft³/s June 25; maximum gage height, 30.91 ft June 25; minimum daily discharge, 10,500 ft³/s Dec. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37700	36900	35400	21900	21300	23700	37700	39900	29300	50300	48700	47400
2	38100	37100	35400	22600	21200	24100	37900	38700	30100	45700	48400	47000
3	38300	37500	34300	22400	21100	24400	39600	38700	30800	43000	48100	46500
4	38200	37900	33500	22000	21000	25100	39700	39500	31700	42200	47900	46300
5	37900	38000	32400	21000	19400	25400	38400	41000	32300	41600	48300	46100
6	37100	37900	30400	21100	16800	25000	39500	39900	32900	38700	47800	45800
7	36700	38000	28500	19900	19500	25100	41100	41900	33100	37900	47900	46000
8	37100	38100	26100	19200	21000	21700	43700	42300	34300	37900	48300	46100
9	37200	38600	24900	18700	20900	26400	42700	41900	32200	39100	48300	46100
10	37600	38200	24500	18800	20800	27800	40100	43500	29000	41900	48400	46300
11	38300	37500	26000	18700	20300	29400	38800	45200	26600	44000	48600	46600
12	38200	37600	24700	19300	20400	27400	44400	42800	33400	46400	48500	46700
13	38600	37700	23900	18600	21500	28000	50500	38900	33400	48100	48300	46600
14	38100	37800	24100	18300	21500	27900	53300	35800	31100	50700	48100	46500
15	38000	37500	22900	19200	21800	27200	57300	33000	33800	52600	48600	46500
16	37800	37400	21700	19900	24500	26700	63900	28700	42500	53600	49100	46200
17	37500	37400	21100	20400	27400	27000	63000	29300	43700	53800	49000	46000
18	37200	37400	18100	21600	25700	27600	57500	31200	45500	53000	48700	46100
19	38000	38100	20300	21200	21100	28100	53500	30700	48700	52500	48400	46200
20	38200	38700	20500	20900	24000	28900	49700	30000	61000	52700	48400	46400
21	37500	38000	15300	21800	24000	29700	47000	29300	68100	50800	49500	45700
22	37400	38800	10500	22600	24500	30500	44600	29100	76000	50500	49100	45700
23	37200	38900	12500	23100	22700	31600	39700	28700	77700	49800	49100	46100
24	36800	38200	17000	23000	23000	33300	37300	28800	91500	49100	48800	46100
25	37300	37600	17600	22500	23200	34300	35300	29600	103000	48700	48100	46200
26	37800	37600	20600	22700	23200	34400	36100	29100	96000	50000	47500	45900
27	38400	37500	22600	21800	23400	33100	37400	30100	83700	50300	47000	46100
28	38100	37000	22500	20900	23400	32600	36700	32800	72900	49700	47300	46200
29	37600	36100	22400	21000	23400	34800	36200	32200	65200	50300	47800	46100
30	37200	36100	23200	21000	---	36200	38800	28700	57600	50200	47800	46300
31	36600	---	23200	21100	---	37300	---	28500	---	49000	47400	---
TOTAL	1167700	1131100	736100	647200	642000	894700	1321400	1079800	1507100	1474100	1497200	1387800
MEAN	37670	37700	23750	20880	22140	28860	44050	34830	50240	47550	48300	46260
MAX	38600	38900	35400	23100	27400	37300	63900	45200	103000	53800	49500	47400
MIN	36600	36100	10500	18300	16800	21700	35300	28500	26600	37900	47000	45700
AC-FT	2316000	2244000	1460000	1284000	1273000	1775000	2621000	2142000	2989000	2924000	2970000	2753000

CAL YR 1983	TOTAL	12062100	MEAN	33050	MAX	44000	MIN	10500	AC-FT	23930000
WTR YR 1984	TOTAL	13486200	MEAN	36850	MAX	103000	MIN	10500	AC-FT	26750000

434002103214500 CUSTER STATE PARK, SD

RAINFALL, ACCUMULATED (INCHES), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	.00	.00	.00	.00	.00	.20	.34	.50	.00	.05	.00
2	.24	.00	.00	.00	.00	.00	.30	.00	.05	.23	.00	.00
3	.93	.00	.00	.00	.00	.00	.00	.07	.20	1.79	.03	.00
4	.00	.00	.00	.00	.00	.00	.00	.03	.03	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.06	.35	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.19	.00	.00	.00	.00
7	.16	.05	.00	.00	.00	.00	.00	.00	.00	1.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.05	.10	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.90	.37	.00	.00
10	.33	.01	.03	.00	.00	.00	.00	.05	.35	.05	.00	.00
11	.00	.04	.02	.00	.00	.00	.05	.00	.50	.00	.00	.00
12	.00	.00	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.05	.00	.00	.18	.00	.00	.00
14	.24	.00	.00	.04	.05	.00	.00	.00	.70	.23	.00	.00
15	.23	.00	.00	.00	.00	.00	.00	.00	.08	1.25	.00	.00
16	.00	.00	.00	.00	.00	.07	.00	.10	.00	.00	.07	.05
17	.00	.00	.00	.00	.00	.00	.00	.00	.74	.00	.05	.03
18	.04	.00	.00	.00	.00	.11	.00	.15	.00	.00	.00	.00
19	.11	.00	.00	.00	.00	.00	.02	.10	.00	.00	.60	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.58	.00	.00
23	.00	.00	.00	.03	.00	.00	.00	.00	.00	.05	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.17	.00	.05
25	.01	.15	.00	.05	.00	.17	1.55	.00	.00	.00	.00	.00
26	.00	.05	.00	.00	.05	.07	.10	.00	.00	.00	.00	.00
27	.00	.05	.00	.00	.03	.09	.02	.00	.00	.00	.00	.00
28	.00	.05	.00	.00	.00	.02	.00	.00	.00	.00	.15	.00
29	.00	.00	.03	.03	.00	.00	.00	.25	.00	.00	.00	.00
30	.00	.00	.06	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.01	---	.01	.00	---	.05	---	.00	---	.05	.00	---

434444103282000 CUSTER STATE PARK, SD

RAINFALL, ACCUMULATED (INCHES), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.22	.25	.65	.00	.00	.00
2	.50	.00	.00	.00	.00	.00	.50	.00	.05	.07	.05	.00
3	.95	.00	.00	.00	.03	.00	.08	.02	.27	.70	.30	.00
4	.00	.00	.00	.00	.00	.04	.00	.00	.05	.00	.05	.00
5	.00	.01	.00	.00	.00	.00	.00	.16	.35	.00	.08	.00
6	.00	.00	.00	.00	.00	.00	.00	.11	.00	.00	.00	.00
7	.18	.00	.00	.00	.00	.00	.00	.00	.00	.22	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.12	.00	.00
9	.01	.08	.00	.00	.00	.00	.00	.00	.90	.72	.00	.00
10	.35	.20	.11	.02	.00	.00	.03	.06	.35	.72	.00	.00
11	.04	.13	.06	.04	.00	.00	.05	.00	.50	.15	.00	.00
12	.00	.05	.06	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.01	.00	.00	.00	.00	.00	.00	.10	.00	.00	.10
14	.01	.00	.00	.08	.10	.00	.00	.00	.32	.00	.00	.15
15	.39	.00	.00	.00	.00	.00	.00	.00	.00	1.78	.00	.00
16	.08	.00	.00	.00	.00	.04	.00	.10	.00	.00	.00	.25
17	.00	.00	.00	.00	.00	.00	.00	.00	.33	.00	.10	.00
18	.05	.00	.00	.00	.00	.15	.00	.25	.00	.00	.00	.00
19	.12	.00	.00	.00	.00	.00	.03	.10	.15	.00	.36	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.10	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.20	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.05	.25	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.12	.00	.00
24	.00	.04	.00	.00	.00	.00	.00	.00	.00	.32	1.75	.00
25	.00	.25	.00	.00	.02	.00	1.55	.00	.00	.00	.00	.00
26	.00	.08	.00	.00	.07	.40	.14	.00	.00	.00	.00	.00
27	.00	.05	.00	.00	.00	.02	.05	.00	.00	.00	.00	.00
28	.00	.05	.00	.00	.00	.02	.05	.00	.00	.00	.00	.00
29	.00	.00	.09	.04	.00	.00	.00	.05	.00	.00	.00	.00
30	.00	.00	.13	.00	---	.00	.00	.00	.15	.54	.00	.00
31	.00	---	.04	.00	---	.05	---	.00	---	.15	.00	---

441037103292701 OX BOW RANCH NEAR NEMO, SD

RAINFALL, ACCUMULATED (INCHES), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.02	.20	.10	.00	.00	.00	.00
2	.10	.00	.00	.00	.00	.00	.65	.00	.00	.56	1.00	.00
3	.62	.00	.10	.00	.00	.10	.65	.08	.03	.30	.32	.00
4	.00	.00	.10	.00	.00	.10	.00	.00	.05	.00	.00	.00
5	.00	.00	.00	.00	.00	.08	.00	.00	.34	.00	.10	.00
6	.00	.00	.00	.00	.00	.06	.00	.00	.00	.00	.00	.00
7	.05	.16	.00	.00	.00	.00	.00	.00	.00	.88	.00	.00
8	.00	.20	.00	.00	.00	.00	.00	.00	.00	1.00	.00	.00
9	.00	.00	.00	.00	.00	.06	.00	.00	1.50	.25	.00	.00
10	.14	.00	.00	.00	.00	.00	.00	.00	.14	.00	.00	.00
11	.10	.00	.00	.00	.00	.00	.00	.00	.64	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.15	.00	.10	.00	.00	.00	.20	.00	.00	.00	.15
14	.38	.00	.00	.00	.00	.00	.00	.25	.64	.10	.00	.08
15	.04	.00	.00	.00	.00	.00	.00	.00	.10	.14	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.65	.00	.53	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.30	.00	.03	.00
18	.13	.00	.00	.00	.00	.08	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.35	.08
20	.00	.00	.10	.10	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.18	.00	.00	.00	.00	.00	.00	.10	.00	.00	.00
22	.00	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.03	.00	.00	.00	.20	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.20	.00	.00	.00	.08
25	.00	.32	.00	.00	.00	.00	.00	.25	.00	.00	.00	.00
26	.00	.10	.00	.00	.03	.10	2.00	.32	.00	.00	.00	.00
27	.00	.00	.00	.00	.03	.20	.65	.22	.12	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.12	.03	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---

441859103385600 ADAMS RANCH NR LEAD, SD

RAINFALL, ACCUMULATED (INCHES), WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
SUMMATION VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		.00	.00	.00	.00	.11	.02	.00	.15	.00	.00	.00
2		.00	.00	.00	.00	.03	.48	.00	.00	.00	.00	.00
3		.00	.00	.00	.12	.15	.55	.10	.03	.00	.20	.00
4		.00	.30	.00	.00	.35	.00	.06	.40	.00	.00	.00
5		.00	.03	.00	.00	.16	.00	.00	.15	.00	.44	.00
6		.00	.00	.00	.00	.25	.00	.30	.00	.00	.00	.00
7		.15	.05	.00	.00	.14	.00	.00	.10	.17	.00	.00
8		.23	.00	.00	.00	.00	.00	.00	.05	.16	.00	.00
9		.00	.08	.00	.03	.18	.00	.00	1.90	.08	.00	.00
10		.00	.00	.00	.00	.00	.00	.00	.14	.00	.00	.05
11		.00	.00	.08	.00	.00	.52	.00	.35	.23	.00	.00
12		.60	.08	.03	.04	.00	.00	.00	.00	.00	.00	.00
13		.07	.00	.00	.00	.00	.00	.00	.00	.00	.00	.26
14		.00	.00	.03	.05	.00	.00	.00	.86	.11	.00	.13
15		.00	.00	.08	.00	.00	.00	.00	.38	.05	.00	.00
16		.00	.00	.00	.00	.00	.00	.00	.20	.00	1.15	.00
17		.00	.00	.10	.00	.00	.00	.00	.27	.00	.72	.00
18		.00	.12	.00	.00	.15	.00	.00	.00	.00	.00	.00
19		.00	.05	.04	.10	.00	.00	.00	.00	.00	.80	.00
20		.00	.00	.00	.00	.00	.00	.00	.13	.07	.00	.00
21		.20	.00	.00	.00	.00	.00	.50	.08	.00	.00	.00
22		.08	.00	.00	.00	.00	.00	.00	.07	.15	.00	.00
23		.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.14
24		.00	.15	.05	.15	.00	.08	.00	.00	.00	.00	.07
25		.15	.00	.00	.20	.04	.41	.23	.00	.00	.00	.00
26		.35	.00	.00	.00	.00	1.35	.00	.00	.00	.00	.00
27		.00	.00	.00	.00	.30	1.05	.70	.00	.00	.00	.23
28		.05	.00	.00	.00	.16	.15	.00	.00	.00	.00	.00
29		.02	.00	.13	.00	.00	.00	.00	.00	.00	.00	.00
30		.00	.00	.00	---	.00	.00	.00	.10	.00	.00	.00
31		---	.00	.00	---	.00	---	.00	---	.12	.00	---

The following water-quality data is for lagoons at Eros Data Center. The water samples were collected by USGS personnel and analyzed by the USGS laboratory in Arvada, Colorado.

STATION NUMBER	LOCAL IDENT-I-FIER	DATE OF SAMPLE	TIME	GEO-LOGIC UNIT	SPE-CIFIC CON-DUCT-ANCE (UMHOS) (00095)	PH (STAND-ARD UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
				MINNEHAHA					
434415096371501	LAGOON #1 AT EROS DATA C	84-07-12	1122	--	1950	8.0	14.5	230	73
434415096371502	LAGOON #2 AT EROS DATA C	84-07-12	1200	--	1890	10.1	17.5	230	71
434415096371503	LAGOON #3 AT EROS DATA C	84-07-12	1330	--	1710	8.7	29.5	160	59
434415096371504	LAGOON #4 AT EROS DATA C	84-07-12	--	--	1950	9.1	32.0	210	65

STATION NUMBER	DATE OF SAMPLE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	PERCENT SODIUM (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)
					MINNEHAHA						
434415096371501	84-07-12	46	250	57	6	27	400	270	1.0	6.7	.091
434415096371502	84-07-12	42	250	59	6	26	400	290	.90	6.5	.210
434415096371503	84-02-12	37	220	60	6	15	240	280	.80	5.3	.200
434415096371504	84-07-12	41	250	60	6	22	350	310	.90	6.7	.160

STATION NUMBER	DATE OF SAMPLE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)
					MINNEHAHA					
434415096371501	84-07-12	<1.0	--	--	5.8	20	1500	<10	500	.4
434415096371502	84-07-12	3.5	1200	1.6	1.4	<10	1500	<10	29	.3
434415096371503	84-02-12	16	960	1.3	.47	<10	960	<10	21	.2
434415096371504	84-07-12	3.6	1100	1.5	.90	10	1400	<10	20	.2

STATION NUMBER	DATE OF SAMPLE	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	CYANIDE TOTAL (MG/L AS CN) (00720)
		MINNEHAHA		
434415096371501	84-07-12	6	160	.40
434415096371502	84-07-12	<1	30	.05
434415096371503	84-02-12	1	12	<.01
434415096371504	84-07-12	<1	25	.02

< Less than.

The following water-quality data are for Choteau Creek, Lake Andes, and tributaries to Lake Andes in Charles Mix County. The water samples were collected by USGS personnel and analyzed by the USGS Laboratory in Arvada, Colorado.

06452380 - ANDES CREEK NR ARMOUR SD

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (STANDARD UNITS)	TEMPERATURE, AIR (DEG C)	TEMPERATURE (DEG C)	BAROMETRIC PRESSURE (MM OF HG)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)
APR											
16...	1330	70	1080	8.2	16.5	14.0	730	470	360	110	48
MAY											
01...	1240	19	1500	8.4	16.5	9.5	729	710	540	170	70
14...	1225	5.8	2000	7.9	21.0	18.0	735	920	690	220	91
JUN											
06...	1025	22	1360	7.6	23.0	19.5	717	590	420	140	58
20...	1145	40	700	7.5	30.0	23.0	729	270	150	67	25
JUL											
05...	1220	19	810	7.7	26.0	23.5	725	360	150	86	35
18...	1435	2.9	1450	8.1	29.5	25.0	726	630	300	150	62

DATE	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
APR										
16...	49	18	1	22	116	460	25	<.10	14	800
MAY										
01...	81	19	1	22	170	710	25	.10	4.7	1200
14...	110	20	2	24	240	930	47	.20	3.5	1600
JUN										
06...	8.	22	1	17	169	570	25	.20	14	1000
20...	31	19	.8	14	123	230	8.8	.20	17	470
JUL										
05...	44	20	1	16	206	230	15	.20	21	570
18...	93	24	2	20	327	490	21	.20	20	1100

DATE	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	PHOSPHATE, ORTHO, DISSOLVED (MG/L AS PO4)	BORON, DISSOLVED (UG/L AS B)
APR										
16...	1.1	151	2.2	2.2	2.1	.400	.330	.280	.86	100
MAY										
01...	1.6	61	<.10	<.10	1.6	.160	.140	.090	.28	130
14...	2.1	25	<.10	<.10	1.1	.230	.210	.160	.49	260
JUN										
06...	1.4	60	.30	.23	1.6	.500	.420	.350	1.1	240
20...	.64	51	.50	.52	.40	.450	.430	.390	1.2	120
JUL										
05...	.78	29	.40	.38	1.2	.820	.800	.800	2.5	150
18...	1.4	8.3	<.10	<.10	1.7	.570	.480	.420	1.3	280

< Less than.

MISCELLANEOUS WATER QUALITY DATA

06452383 - LAKE ANDES TRIB NO.3 NR ARMOUR SD

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)	BARO-METRIC PRES-SURE (MM OF HG)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
APR 16...	1530	2.4	2000	8.4	16.5	17.0	727	950	790	200	110
JUN 20...	1330	8.6	1080	7.8	26.0	25.0	726	480	370	110	50

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
APR 16...	96	18	1	23	160	980	32	.10	15	1600
JUN 20...	49	17	1	18	109	490	16	.20	14	810

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	BORON, DIS-SOLVED (UG/L AS B)
APR 16...	2.1	10	.80	.82	1.5	.310	.270	.220	.67	80
JUN 20...	1.1	19	.20	1.1	2.0	.400	.310	.260	.80	80

06452386 - LAKE ANDES TRIB NO.2 NR LAKE ANDES SD

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)	BARO-METRIC PRES-SURE (MM OF HG)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
APR 17...	0835	5.6	880	8.1	14.0	10.0	728	400	300	95	40
MAY 01...	1445	5.0	1220	8.8	13.5	11.0	727	590	450	150	52
JUN 20...	1525	49	780	7.8	28.0	24.0	--	340	230	84	31

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
APR 17...	35	15	.8	17	104	370	18	<.10	17	650
MAY 01...	48	15	.9	20	136	510	20	.10	9.6	890
JUN 20...	33	17	.8	18	104	290	11	.20	14	540

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	BORON, DIS-SOLVED (UG/L AS B)
APR 17...	.89	9.9	1.2	1.1	1.3	.290	.200	.140	.43	40
MAY 01...	1.2	12	.30	.28	1.4	.100	.040	.040	.12	50
JUN 20...	.74	72	1.1	1.2	1.3	.500	.500	.280	.86	60

< Less than.

06452389 - LAKE ANDES TRIB NO.1 NR LAKE ANDES SD

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)	BARO-METRIC PRES-SURE (MM OF HG)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
APR 17...	1005	1.2	560	8.0	12.0	13.0	729	240	110	58	22
JUN 21...	1100	--	140	7.7	18.0	19.0	727	58	4	16	4.3

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
APR 17...	13	10	.4	25	124	160	8.6	<.10	18	380
JUN 21...	3.0	9	.2	7.0	54	24	1.3	.10	7.9	97

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	BORON, DIS-SOLVED (UG/L AS B)
APR 17...	.52	1.2	1.0	1.0	2.5	.710	.680	.640	2.0	60
JUN 21...	.13	--	.40	.38	2.5	.600	.280	.240	.74	30

< Less than.

MISCELLANEOUS WATER QUALITY DATA

06452392 - LAKE ANDES NR LAKE ANDES SD

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)	BARO-METRIC PRES-SURE (MM OF HG)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT											
07...	1100	.00	2120	8.1	16.0	14.0	726	870	700	230	72
27...	1150	.00	2160	8.4	20.0	10.5	722	850	700	210	80
NOV											
14...	1315	.00	2340	8.6	8.0	4.0	720	1000	860	280	83
JAN											
20...	1100	.00	3300	8.0	-20.0	.0	743	1500	1100	370	130
FEB											
16...	1300	.00	900	7.7	-1.0	.0	727	390	320	120	23
MAR											
12...	1230	.00	1750	8.7	-5.0	.0	725	830	650	230	62
APR											
17...	1110	.00	1580	8.3	12.0	12.0	729	710	560	190	58
MAY											
02...	0840	.00	1570	8.4	8.5	8.5	721	690	520	180	59
14...	1530	.00	1610	8.5	20.0	19.0	734	790	600	170	88
JUN											
06...	1315	.00	1600	8.4	21.0	22.0	718	700	520	180	61
21...	0825	2.6	1500	8.5	21.0	24.0	727	650	470	170	55
JUL											
05...	1455	128	1190	8.4	22.0	26.0	725	510	340	130	45
19...	0820	8.2	1170	8.0	24.5	25.0	725	510	340	130	45
AUG											
09...	0730	--	1260	7.8	20.0	26.0	728	550	350	140	48
22...	1115	--	1130	8.4	20.5	23.5	738	510	320	130	45
SEP											
05...	1315	--	1440	7.7	22.5	21.0	735	610	400	160	52
25...	1400	--	1530	8.1	8.5	12.0	739	680	450	180	56

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT										
07...	73	14	1	67	168	950	50	.80	11	1600
27...	83	16	1	76	158	840	48	.80	13	1400
NOV										
14...	86	14	1	88	181	1000	52	.80	7.5	1700
JAN										
20...	140	16	2	130	335	1500	90	1.1	29	2600
FEB										
16...	23	11	.5	21	76	360	15	.30	5.5	610
MAR										
12...	66	14	1	61	176	820	51	.60	12	1400
APR										
17...	62	15	1	58	157	710	41	.60	13	1200
MAY										
02...	66	16	1	54	174	660	41	.50	8.0	1200
14...	92	19	1	51	187	680	42	.50	.7	1200
JUN										
06...	71	17	1	51	185	660	44	.50	15	1200
21...	66	17	1	48	183	610	41	.50	16	1100
JUL										
05...	53	17	1	38	169	460	31	.40	15	880
19...	54	17	1	36	172	420	29	.30	17	840
AUG										
09...	50	18	1	42	194	450	37	1.5	17	910
22...	53	17	1	37	191	420	29	.40	21	850
SEP										
05...	65	17	1	51	217	510	53	.50	20	1000
25...	69	17	1	47	229	550	61	.40	21	1100

06452392 - LAKE ANDES NR LAKE ANDES SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	BORON, DIS-SOLVED (UG/L AS B)
OCT										
07...	2.1	.00	<.10	<.10	2.5	.760	.740	.700	2.1	420
27...	2.0	.00	.10	<.10	3.5	.770	.740	.590	1.8	390
NOV										
14...	2.3	.00	<.10	<.10	2.4	.800	.750	.690	2.1	390
JAN										
20...	3.5	.00	.10	<.10	4.0	2.60	2.60	2.50	7.7	570
FEB										
16...	.84	.00	.20	.21	1.6	.670	.520	.470	1.4	100
MAR										
12...	1.9	.00	<.10	<.10	11	1.80	1.50	1.10	3.4	280
APR										
17...	1.7	.00	<.10	<.10	2.1	.450	.230	.170	.52	260
MAY										
02...	1.6	.00	<.10	<.10	2.4	.280	.120	.070	.21	230
14...	1.7	.00	<.10	<.10	2.5	.630	.410	.350	1.1	250
JUN										
06...	1.6	.00	.10	.12	2.5	.670	.630	.350	1.1	270
21...	1.5	7.8	<.10	<.10	1.9	.680	.580	.530	1.6	250
JUL										
05...	1.2	303	<.10	<.10	2.5	.780	.660	.620	1.9	200
19...	1.1	19	<.10	<.10	2.3	.960	.900	.750	2.3	200
AUG										
09...	1.2	--	<.10	<.10	2.4	.990	.890	.820	2.5	210
22...	1.2	--	<.10	<.10	1.9	.950	.860	.820	2.5	210
SEP										
05...	1.4	--	<.10	<.10	2.6	.950	.760	.700	2.1	260
25...	1.5	--	<.10	<.10	3.1	.740	.630	.550	1.7	220

< Less than.

06453200 - CHOTEAU CREEK NR WAGNER SD

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)	BARO-METRIC PRES-SURE (MM OF HG)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
FEB											
16...	1145	.58	830	7.9	.0	.0	728	320	240	80	28
MAR											
13...	1230	.49	2300	7.5	2.0	.0	730	1100	770	260	100
APR											
17...	1355	441	860	8.7	25.0	16.0	729	360	240	85	38
MAY											
02...	1315	477	1380	8.4	15.0	11.0	722	650	470	150	67
15...	1215	33	1750	8.4	24.0	17.0	732	360	150	77	41
JUN											
06...	1540	39	1850	8.3	13.0	25.0	--	870	660	190	97
21...	1500	1270	970	8.1	28.0	25.0	727	410	230	95	43
JUL											
06...	1130	56	1080	8.0	21.0	24.0	730	490	210	110	53
19...	1045	18	1340	8.0	26.0	24.0	725	620	310	140	65
AUG											
08...	1420	1.1	1480	8.8	32.0	32.5	728	630	240	140	67

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
FEB										
16...	46	23	1	11	78	310	23	<.10	7.4	550
MAR										
13...	160	24	2	32	294	1000	110	.20	23	1900
APR										
17...	39	18	.9	17	129	310	13	.10	15	590
MAY										
02...	74	19	1	18	185	620	21	.20	.9	1100
15...	61	26	1	18	212	770	29	.20	9.3	1100
JUN										
06...	110	21	2	20	212	850	36	.20	14	1400
21...	51	20	1	16	187	330	15	.20	16	680
JUL										
06...	63	21	1	16	284	320	20	.20	9.5	760
19...	76	20	1	24	310	430	18	.20	21	960
AUG										
08...	98	24	2	29	386	410	42	.40	24	1000

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	BORON, DIS-SOLVED (UG/L AS B)
FEB										
16...	.75	.87	.70	.47	2.7	.890	.760	.710	2.2	90
MAR										
13...	2.5	2.5	.80	.06	2.5	.560	.440	.370	1.1	240
APR										
17...	.81	706	1.1	1.1	1.5	.380	.320	.260	.80	80
MAY										
02...	1.4	1370	<.10	<.10	1.1	.140	.120	.070	.21	160
15...	1.5	101	<.10	<.10	1.3	.230	.200	.160	.49	160
JUN										
06...	2.0	152	<.10	<.10	1.6	.480	.430	.340	1.0	220
21...	.92	2330	.20	.20	5.0	.650	.590	.570	1.7	130
JUL										
06...	1.0	116	<.10	<.10	1.4	.840	.800	.800	2.5	140
19...	1.3	47	<.10	<.10	2.4	.970	.800	.660	2.0	180
AUG										
08...	1.4	3.1	<.10	<.10	3.5	1.90	.820	.780	2.4	230

< Less than.

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06453252 - CHOTEAU CREEK NR DANTE SD

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (STAND-ARD UNITS)	TEMPER-ATURE, AIR (DEG C)	TEMPER-ATURE (DEG C)	BARO-METRIC PRES-SURE (MM OF HG)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT											
07...	1330	.17	2250	7.6	19.5	17.0	729	1200	970	300	120
27...	0845	.09	2380	7.9	7.0	8.0	725	1200	900	300	110
NOV											
15...	1045	.16	2360	8.3	1.5	3.5	734	1300	1100	320	120
JAN											
19...	1130	.07	2600	7.7	-16.0	.0	738	1400	1100	310	150
FEB											
16...	1000	6.9	2450	7.8	2.0	.0	730	970	670	230	94
MAR											
13...	1530	3.3	2350	7.5	1.0	.0	730	1200	840	280	110
APR											
18...	0820	563	960	8.2	16.5	11.5	730	390	250	90	40
MAY											
03...	0930	481	1530	8.3	11.5	9.5	723	700	510	160	73
15...	1440	60	1860	8.6	22.0	20.0	731	850	640	180	97
JUN											
07...	0840	49	2290	8.0	22.0	22.0	719	1100	840	250	120
22...	0900	1280	800	7.8	25.0	24.0	726	330	190	78	33
JUL											
06...	0855	78	1140	8.0	20.5	22.5	735	510	220	120	52
19...	1320	28	1500	8.4	32.0	27.5	727	620	320	140	65
AUG											
08...	1135	5.0	2130	8.0	30.5	28.5	728	980	630	210	110
22...	1405	.83	2250	8.2	23.5	27.0	739	1100	830	250	120
SEP											
06...	0820	.31	2400	8.0	18.0	17.0	725	1200	970	300	120
25...	1625	.14	2340	8.3	10.0	10.5	740	1300	1000	330	110

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT										
07...	83	12	1	18	276	1100	25	.30	14	1800
27...	70	11	.9	6.0	367	1000	19	.30	20	1700
NOV										
15...	88	13	1	17	187	1100	24	.30	18	1800
JAN										
19...	100	13	1	16	319	1300	32	.40	29	2100
FEB										
16...	190	29	3	18	302	870	150	.40	19	1800
MAR										
13...	170	24	2	19	316	1100	110	.40	21	2000
APR										
18...	41	18	.9	15	136	330	14	.10	13	630
MAY										
03...	81	20	1	17	186	700	25	.20	1.3	1200
15...	110	22	2	17	209	830	36	.20	4.4	1400
JUN										
07...	160	23	2	21	276	1000	56	.20	6.8	1800
22...	39	19	1	16	145	270	14	.20	15	550
JUL										
06...	64	21	1	18	291	330	23	.20	12	790
19...	86	23	2	21	295	470	32	.30	19	1000
AUG										
08...	160	26	2	22	349	790	73	.40	8.9	1600
22...	160	23	2	24	286	1000	66	.40	11	1800
SEP										
06...	120	17	2	23	275	1200	44	.40	11	2000
25...	90	13	1	17	278	1200	25	.20	15	2000

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06453252 - CHOTEAU CREEK NR DANTE SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	BORON, DIS-SOLVED (UG/L AS B)
OCT										
07...	2.5	.84	<.10	<.10	1.9	.200	.060	.060	.18	370
27...	2.3	.42	<.10	.19	1.7	.310	.120	.050	.15	330
NOV										
15...	2.4	.78	<.10	<.10	1.8	.150	.040	.040	.12	360
JAN										
19...	2.9	.40	1.6	1.6	1.5	.080	.040	.010	.03	400
FEB										
16...	2.4	33	.90	.07	3.0	.830	.630	.630	1.9	390
MAR										
13...	2.7	18	1.1	1.1	.20	.450	.350	.280	.86	380
APR										
18...	.85	951	1.1	1.1	1.4	.370	.290	.230	.71	90
MAY										
03...	1.6	1520	<.10	<.10	1.3	.150	.100	.070	.21	140
15...	1.9	227	<.10	<.10	1.3	.230	.180	.140	.43	180
JUN										
07...	2.4	236	<.10	<.10	1.7	.690	.630	.100	.31	310
22...	.75	1910	.30	.28	3.5	.450	.390	.340	1.0	110
JUL										
06...	1.1	167	.20	.23	2.5	.940	.590	<.010	--	170
19...	1.4	76	<.10	<.10	2.9	.780	.480	.410	1.3	250
AUG										
08...	2.2	21	<.10	<.10	3.1	1.00	.880	.190	.58	490
22...	2.5	4.0	<.10	<.10	2.2	.300	.060	.050	.15	550
SEP										
06...	2.7	1.7	<.10	<.10	4.0	.740	.030	.030	.09	520
25...	2.7	.74	<.10	<.10	1.2	.170	.020	.010	.03	420

< Less than.

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

06334500 - LITTLE MISSOURI R AT CAMP CROOK SD (LAT 45 32 49 LONG 103 58 23)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
05...	1015	2.8	9.5	15.5	1650
NOV					
08...	1010	2.8	5.0	4.5	1580
DEC					
13...	1040	4.2	.0	.0	2040
JAN , 1984					
12...	1100	5.0	.0	-1.5	1500
FEB					
07...	1010	10	.5	12.5	2200
MAR					
06...	0940	20	.5	-1.0	1320
APR					
19...	1405	9.6	14.0	17.0	1570
MAY					
03...	1610	975	5.0	9.0	330
JUN					
06...	1005	41	15.0	18.0	1200
JUL					
17...	1045	41	21.5	24.0	1150
AUG					
14...	1325	9.2	22.0	24.0	1670
SEP					
11...	1135	5.2	16.0	18.0	1900
27...	1425	13	8.0	4.5	1670

06354860 - SPRING CR NEAR HERREID SD (LAT 45 48 52 LONG 100 06 28)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
FEB , 1984					
27...	1430	15	2.5	.0	430
APR					
23...	1535	2.8	15.5	17.0	570
MAY					
21...	1635	1.2	17.5	17.0	655
JUN					
19...	1310	52	27.5	24.5	500
JUL					
16...	1615	.12	27.5	26.0	--

06355500 - NORTH FORK GRAND R NEAR WHITE BUTTE SD (LAT 45 48 10 LONG 102 21 45)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
05...	1355	7.0	13.0	15.0	--
27...	1420	6.4	11.5	17.5	1450
DEC					
01...	1155	5.4	.0	-8.0	--
JAN , 1984					
05...	1405	3.0	.0	--	--
FEB					
02...	1035	10	.0	3.0	3530
28...	1500	17	.0	1.0	1500
MAR					
28...	1600	15	4.0	1.5	2050
APR					
24...	1220	14	13.0	9.5	3200
MAY					
22...	1535	46	17.0	19.0	2800
JUN					
20...	1550	42	26.0	25.5	3400
JUL					
17...	1625	7.0	27.5	28.0	3200

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

06356000 - SOUTH FORK GRAND R AT BUFFALO SD (LAT 45 34 34 LONG 103 32 38)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
05...	1230	2.6	10.0	16.0	1650
NOV					
10...	1540	2.6	3.5	16.5	1750
DEC					
13...	1230	2.8	.0	.0	1780
JAN , 1984					
12...	1310	5.3	.5	-2.0	--
FEB					
07...	1220	3.2	.0	10.5	1080
MAR					
06...	1220	3.9	.5	-2.5	1490
APR					
19...	1015	2.4	8.5	16.0	1720
MAY					
03...	1135	213	2.0	15.0	310
08...	1600	46	11.5	19.0	460
JUN					
06...	1325	5.4	19.0	24.0	1060
JUL					
17...	1400	1.8	24.5	28.0	1920
AUG					
14...	1640	1.5	23.5	25.5	2020
SEP					
11...	1520	1.8	17.0	22.0	1880
27...	1025	18	5.0	2.0	932

06356500 - SOUTH FORK GRAND R NEAR CASH SD (LAT 45 38 56 LONG 102 38 27)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
05...	1200	14	10.5	15.0	--
27...	1255	13	13.0	17.0	1700
DEC					
01...	0940	5.0	.0	-16.0	--
FEB , 1984					
02...	1240	64	.0	5.0	910
28...	1415	13	.5	.0	1700
MAR					
28...	1430	31	3.0	2.5	1360
APR					
24...	1100	16	11.0	9.5	2450
MAY					
03...	1240	771	8.5	12.0	750
22...	1405	23	15.5	16.5	1720
JUN					
20...	1415	78	--	24.0	1550
JUL					
17...	1415	10	25.5	25.0	2250
AUG					
16...	1245	7.0	24.0	29.5	2700
SEP					
13...	1145	8.8	--	18.0	2550

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

06357500 - GRAND R AT SHADEHILL SD (LAT 45 45 25 LONG 102 11 41)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
05...	1530	108	14.5	11.0	--
27...	1525	74	15.5	19.0	1500
NOV					
30...	1550	9.9	.0	-12.0	1900
JAN , 1984					
05...	1415	19	.0	--	--
FEB					
02...	0840	17	1.0	-1.0	2010
28...	1610	21	4.5	1.5	2300
MAR					
28...	1715	16	6.5	2.0	1860
APR					
24...	1340	20	--	10.5	2000
MAY					
22...	1700	20	16.0	17.5	1780
JUN					
20...	1650	91	21.0	24.0	1800
JUL					
17...	1750	86	24.0	28.0	1880
AUG					
16...	1440	160	25.0	33.5	1850
SEP					
13...	1345	95	15.0	18.0	2050

06357800 - GRAND R AT LITTLE EAGLE SD (LAT 45 30 28 LONG 100 49 04)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
27...	0840	44	7.0	11.5	1120
FEB , 1984					
01...	1105	250	.5	7.5	736
MAY					
22...	0800	61	12.5	12.0	1910
AUG					
16...	0900	155	21.5	24.5	1380

06359500 - MOREAU R NEAR FAITH SD (LAT 45 11 52 LONG 102 09 22)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
06...	0905	9.9	9.0	8.0	--
28...	0950	12	--	4.5	--
NOV					
30...	1355	7.7	.0	-7.0	2700
JAN , 1984					
06...	0900	.63	.0	--	--
FEB					
01...	1605	219	.0	8.0	860
29...	0830	17	1.0	-1.0	2100
MAR					
28...	1230	47	4.0	1.5	1950
APR					
25...	0745	15	8.5	5.0	2100
MAY					
04...	0820	2600	6.5	5.5	1000
22...	1215	42	16.5	18.0	1460
JUN					
21...	0600	2060	--	19.0	--
JUL					
17...	1315	34	25.0	27.0	2100
AUG					
17...	0720	6.8	23.0	22.5	2100
SEP					
14...	0805	5.5	--	--	2200

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

06360500 - MOREAU R NEAR WHITEHORSE SD (LAT 45 15 21 LONG 100 50 33)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983 26...	1010	35	8.0	13.5	1230
FEB , 1984 27...	1110	154	.5	.0	1330
MAY 21...	1130	118	18.5	15.0	1110
JUL 16...	1130	30	27.5	23.5	1180

06395000 - CHEYENNE R AT EDGEMONT SD (LAT 43 18 20 LONG 103 49 14)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983 03...	1215	9.0	14.5	14.0	4900
NOV 08...	0940	28	2.0	1.5	3540
DEC 06...	1605	6.4	.0	--	5100
JAN , 1984 10...	1155	2.5	.0	-4.5	5350
FEB 07...	1420	170	.0	7.5	2940
MAR 06...	1430	156	.0	1.0	2250
APR 04...	1155	80	10.0	10.0	2800
MAY 02...	1500	1350	7.5	11.0	1170
JUN 14...	0900	159	11.5	24.0	2250
JUL 17...	1530	18	32.0	28.0	3700
AUG 16...	1210	7.8	29.5	33.0	4200
SEP 11...	1145	5.7	20.0	24.5	6300

06400000 - HAT CR NEAR EDGEMONT SD (LAT 43 14 46 LONG 103 35 16)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
NOV , 1983 08...	1510	.98	6.0	2.0	3260
DEC 06...	1205	1.3	.0	--	3920
JAN , 1984 11...	1040	19	.0	.5	2920
FEB 07...	0920	18	.0	2.0	702
MAR 06...	1035	6.2	.5	3.0	1510
APR 04...	1615	2.2	11.0	10.5	2360
MAY 03...	1130	295	8.0	17.0	1340
JUN 13...	1650	7.3	14.5	24.5	2260
JUL 17...	1240	5.2	25.0	27.0	2300
AUG 16...	0855	.11	26.0	26.5	3100

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

06400497 - CASCADE SPRINGS NEAR HOT SPRINGS SD (LAT 43 20 20 LONG 103 33 08)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
04...	1015	20	20.0	10.5	2410
NOV					
09...	0845	19	20.0	-3.0	2600
JAN , 1984					
11...	1305	20	20.0	2.0	2480
MAR					
06...	0825	23	20.0	1.0	2740
MAY					
07...	1320	24	20.5	11.5	2520
JUL					
17...	0850	21	20.5	20.0	2350
SEP					
11...	0820	20	21.0	19.0	2620

06400875 - HORSEHEAD CREEK AT OELRICHS SD (LAT 43 11 17 LONG 103 13 34)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
JAN , 1984					
09...	1715	.01	.0	-2.0	2540
FEB					
06...	1430	.05	1.5	11.0	2510
MAR					
05...	1545	.01	4.0	2.0	2320
APR					
05...	1250	.55	10.0	15.0	1880
MAY					
01...	1340	348	5.0	8.0	827
02...	1045	242	5.5	8.0	787
JUN					
13...	1445	1.2	12.5	25.0	1880
JUL					
16...	1500	.10	25.5	27.5	1500

06401500 - CHEYENNE R BELOW ANGOSTURA DAM SD (LAT 43 20 42 LONG 103 26 12)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
FEB , 1984					
08...	0855	1.1	1.5	-1.5	2270
MAR					
07...	1205	1.7	6.0	2.5	2410
APR					
06...	1130	90	6.5	15.5	2160
MAY					
08...	1610	1040	10.0	19.5	2180
JUN					
07...	1100	64	16.5	21.5	1490
JUL					
16...	1615	2.9	27.0	27.5	2150
AUG					
15...	1620	2.0	28.5	31.5	2100

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

06402000 - FALL R AT HOT SPRINGS SD (LAT 43 25 50 LONG 103 28 33)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
03...	1750	20	23.0	8.0	1180
NOV					
07...	1725	24	23.0	8.0	1200
DEC					
07...	0940	20	21.0	-3.5	1280
JAN , 1984					
11...	1600	20	22.5	3.5	1250
FEB					
06...	1630	21	22.5	7.0	1250
MAR					
07...	0935	21	21.0	.5	1340
APR					
05...	1720	22	23.5	12.5	1240
MAY					
01...	1740	21	22.5	4.0	1250
JUN					
07...	1515	25	26.0	25.0	1280
JUL					
18...	0830	20	25.0	21.0	1360
AUG					
16...	1600	22	29.0	32.0	1320
SEP					
10...	1725	22	26.0	24.0	1300

06402500 - BEAVER CR NEAR BUFFALO GAP SD (LAT 43 27 56 LONG 103 18 22)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
04...	1815	5.0	14.5	15.5	2080
NOV					
09...	1455	9.9	7.0	2.0	2450
DEC					
08...	0925	9.2	1.0	--	2450
JAN , 1984					
12...	1110	11	2.5	--	2440
FEB					
08...	1140	9.9	5.0	11.0	2380
MAR					
07...	1455	8.8	6.0	2.5	2520
APR					
06...	1645	8.7	13.5	14.5	2380
MAY					
07...	1615	11	13.0	14.5	2420
JUN					
08...	1015	9.5	9.0	12.0	2400
JUL					
18...	1100	10	20.0	27.5	2500
AUG					
17...	0915	2.3	22.0	26.0	2600
SEP					
11...	1500	7.2	18.0	20.0	2500

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
06403300 - FRENCH CREEK ABOVE FAIRBURN SD (LAT 43 43 02 LONG 103 22 03)					
OCT , 1983 05...	1025	12	9.5	13.5	284
NOV 10...	1050	2.0	2.0	5.5	283
DEC 12...	1230	1.7	.0	4.0	278
JAN , 1984 13...	1245	1.4	.0	--	282
FEB 02...	0945	1.5	.0	2.0	278
MAR 02...	1050	3.1	.5	7.0	294
APR 17...	1040	6.8	8.0	16.5	295
MAY 10...	1045	37	11.0	18.0	287
JUN 14...	1530	44	12.0	--	280
JUL 19...	1425	22	21.0	27.5	230
AUG 21...	1350	8.1	20.0	22.0	270
SEP 12...	1510	2.9	18.0	24.5	270
06404000 - BATTLE CR NEAR KEYSTONE SD (LAT 43 52 18 LONG 103 20 09)					
OCT , 1983 06...	1240	.16	12.0	24.5	330
NOV 14...	0925	1.3	1.0	5.0	317
DEC 08...	1405	1.4	.0	--	345
JAN , 1984 12...	1505	2.1	.0	--	350
FEB 03...	0845	1.2	.0	1.5	367
MAR 08...	0850	.92	.0	--	368
APR 16...	1830	4.5	13.0	10.5	217
MAY 14...	1330	31	18.0	23.0	1330
JUN 08...	1500	13	10.0	11.0	205
JUL 18...	1605	17	23.0	30.0	175
AUG 17...	1345	3.0	24.5	28.5	255
SEP 05...	1110	.35	17.0	32.0	310

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

06404998 - GRACE COOLIDGE CR NR GAME LODGE NR CUSTER (LAT 43 45 40 LONG 103 21 49)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
05...	1505	.75	13.0	13.5	184
NOV					
10...	1440	1.2	4.0	3.0	189
DEC					
12...	1545	1.2	.0	-1.0	173
JAN , 1984					
16...	1150	.35	.0	--	196
FEB					
10...	0950	.68	.0	8.5	196
MAR					
02...	1335	.62	2.0	8.0	181
APR					
17...	1450	2.7	13.0	16.5	156
MAY					
11...	0930	30	8.5	13.0	100
JUN					
14...	1315	21	10.5	25.0	132
JUL					
19...	1110	11	18.0	25.0	135
AUG					
21...	1040	3.1	20.0	23.5	160
SEP					
12...	1310	1.5	19.0	23.0	170

06406000 - BATTLE CR AT HERMOSA SD (LAT 43 49 41 LONG 103 11 44)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
06...	1100	4.5	10.5	14.0	637
NOV					
14...	1235	5.3	4.5	8.0	640
DEC					
09...	1230	3.9	.0	-1.5	689
JAN , 1984					
16...	1420	3.9	.0	--	700
FEB					
02...	1245	2.7	2.5	7.0	670
MAR					
08...	1100	3.7	.5	-5.0	710
APR					
16...	1435	4.2	14.0	18.0	624
MAY					
14...	1120	21	15.5	22.5	385
JUN					
08...	1330	15	8.5	10.0	610
JUL					
18...	1400	25	20.0	30.5	460
AUG					
17...	1150	14	22.5	30.0	520
SEP					
12...	1125	11	16.5	--	--

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
06408500 - SPRING CR NEAR HERMOSA SD (LAT 43 56 30 LONG 103 09 33)					
OCT , 1983					
06...	0905	2.0	9.0	10.0	990
NOV					
14...	1705	2.2	3.0	-1.0	1040
DEC					
09...	1630	2.1	.0	--	1040
JAN , 1984					
16...	1715	2.1	.0	--	1110
FEB					
02...	1420	2.0	.0	8.5	1010
MAR					
08...	1435	1.8	1.0	-2.0	1130
APR					
18...	1050	1.7	12.0	15.5	1040
MAY					
14...	1000	2.4	16.5	19.5	1160
JUN					
19...	1430	68	11.5	19.5	--
JUL					
20...	1420	7.6	23.5	30.0	870
AUG					
21...	1615	3.1	20.5	27.5	940
SEP					
05...	1335	2.7	17.0	28.5	970
06408700 - RHOADS FORK NEAR ROCHFORD SD (LAT 44 08 12 LONG 103 51 29)					
OCT , 1983					
07...	1040	7.3	6.0	2.5	443
NOV					
03...	1045	6.9	6.5	13.0	441
DEC					
13...	1115	6.4	3.0	-5.0	450
JAN , 1984					
24...	1205	6.6	4.5	1.5	450
FEB					
14...	1035	6.9	5.5	6.0	455
MAR					
26...	1230	6.8	5.0	1.0	455
APR					
23...	1235	6.3	10.5	13.5	460
MAY					
23...	1430	6.5	14.0	21.0	470
JUN					
21...	0940	8.0	10.0	20.5	450
JUL					
23...	1210	6.7	14.0	23.0	460
AUG					
22...	1125	6.9	12.0	18.5	450
SEP					
13...	1600	6.4	10.0	19.0	460

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

06409000 - CASTLE CR ABOVE DEERFIELD RES NEAR HILL CITY SD (LAT 44 00 49 LONG 103 49 48)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
11...	1430	14	5.5	2.5	460
NOV					
03...	1215	13	5.5	14.5	--
DEC					
02...	1155	11	.5	5.5	500
JAN , 1984					
09...	1530	12	2.0	-1.0	--
FEB					
01...	1225	11	.5	8.5	480
MAR					
01...	1325	11	1.0	6.0	450
APR					
09...	1345	18	5.0	11.0	430
MAY					
14...	1250	32	11.5	21.5	450
JUN					
01...	1325	23	7.0	9.0	470
JUL					
13...	1400	17	16.0	28.0	460
AUG					
19...	1350	14	15.5	27.0	450
SEP					
04...	1255	14	12.0	23.0	445

06410000 - CASTLE CR BELOW DEERFIELD DAM SD (LAT 44 01 45 LONG 103 46 53)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
11...	1150	4.6	9.5	5.0	350
NOV					
03...	1030	2.2	8.0	16.0	400
MAR , 1984					
01...	1100	2.2	4.5	6.5	460
APR					
09...	1125	9.3	4.5	11.0	490
MAY					
14...	1445	12	7.0	25.0	430
JUN					
01...	1110	19	6.5	13.5	440
JUL					
13...	1055	16	10.0	27.0	440
AUG					
10...	1055	15	10.5	24.0	440
SEP					
04...	1050	11	10.5	20.5	430

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

06410500 - RAPID CR ABOVE PACTOLA RES NEAR SILVER CITY SD (LAT 44 05 05 LONG 103 34 48)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983 07...	1420	26	8.0	7.0	378
NOV 04...	1115	23	4.5	16.5	383
DEC 01...	1305	18	.0	-1.0	402
JAN , 1984 17...	1235	20	.0	--	436
FEB 01...	1005	20	.0	6.0	403
MAR 01...	0940	24	.0	4.5	424
APR 10...	1050	69	4.0	10.0	311
MAY 09...	1420	146	9.5	20.0	256
JUN 18...	1030	174	4.0	20.0	370
JUL 02...	1000	79	13.5	26.0	400
AUG 13...	1345	51	19.5	30.0	380
SEP 13...	1350	34	14.5	17.0	360

06411500 - RAPID CR BELOW PACTOLA DAM SD (LAT 44 04 36 LONG 103 28 54)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983 07...	1620	14	6.5	7.5	360
NOV 04...	1345	15	7.5	19.0	353
DEC 01...	1530	15	4.5	-3.0	345
JAN , 1984 17...	1510	22	2.5	--	371
FEB 01...	1150	22	4.0	12.0	365
MAR 01...	1125	15	4.5	7.0	390
APR 09...	1205	44	4.5	13.0	363
MAY 14...	0950	219	5.5	20.5	360
JUN 18...	1215	182	6.5	22.5	435
JUL 02...	1120	74	6.5	27.0	352
AUG 13...	1530	103	8.0	31.0	360
SEP 13...	1050	52	7.5	18.0	350

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
06412500 - RAPID CR ABOVE CANYON LAKE NEAR RAPID CITY SD (LAT 44 03 04 LONG 103 18 47)					
OCT , 1983					
03...	1010	11	12.0	13.0	360
NOV					
04...	0955	11	8.0	19.5	360
DEC					
02...	1510	8.8	1.0	1.0	390
JAN , 1984					
09...	1135	20	1.5	2.0	360
FEB					
01...	1525	20	1.5	5.5	370
MAR					
01...	1555	17	3.0	5.0	350
APR					
02...	1355	45	.0	.0	348
MAY					
15...	0935	235	8.0	19.5	350
JUN					
08...	1055	79	11.5	18.5	350
JUL					
10...	1355	162	12.5	--	360
AUG					
23...	1255	55	18.0	29.5	360
SEP					
06...	1135	39	14.5	22.0	361
06414000 - RAPID CR AT RAPID CITY SD (LAT 44 05 09 LONG 103 14 31)					
OCT , 1983					
03...	1145	31	12.0	13.0	--
NOV					
03...	1615	36	12.5	14.5	520
DEC					
06...	1510	34	4.5	5.5	520
JAN , 1984					
10...	1020	44	3.5	3.0	550
FEB					
02...	0950	38	3.5	--	500
MAR					
02...	1025	32	5.0	8.5	520
APR					
03...	1525	71	7.0	9.5	487
MAY					
15...	1155	256	12.5	25.5	400
JUL					
02...	1110	86	18.5	27.0	450
AUG					
14...	1525	97	20.5	32.5	410
06418900 - RAPID CREEK BELOW SEWAGE PLANT NR RAPID CITY SD (LAT 44 01 24 LONG 103 05 43)					
OCT , 1983					
03...	1515	51	13.0	10.0	800
NOV					
04...	1625	35	12.5	17.0	1040
DEC					
01...	1210	39	5.0	-5.0	930
JAN , 1984					
10...	1445	61	2.0	13.0	990
FEB					
02...	1145	58	2.0	6.0	930
MAR					
02...	1300	51	7.0	12.0	940
APR					
16...	1320	83	13.0	18.5	880
MAY					
04...	1125	164	9.5	11.5	970
JUN					
15...	1330	366	12.0	25.5	835
JUL					
02...	1410	111	20.5	--	910
AUG					
14...	1345	50	22.0	29.5	1000
SEP					
05...	1550	30	21.0	32.0	1250

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
06421500 - RAPID CR NEAR FARMINGDALE SD (LAT 43 56 31 LONG 102 51 12)					
OCT , 1983					
07...	1035	35	10.0	20.0	1020
NOV					
04...	1450	44	11.0	21.5	1030
DEC					
01...	1015	42	.5	--	1040
JAN , 1984					
10...	1705	71	.0	6.0	880
FEB					
02...	1430	96	.0	11.0	850
MAR					
02...	1530	60	.5	11.0	920
APR					
16...	1520	76	14.0	21.5	730
MAY					
15...	1505	252	18.0	32.0	570
JUN					
15...	1030	238	13.0	19.5	720
JUL					
02...	1625	121	29.5	22.5	740
AUG					
14...	1115	22	26.0	27.5	940
SEP					
06...	1530	13	21.5	31.5	1100
06422500 - BOXELDER CR NEAR NEMO SD (LAT 44 08 38 LONG 103 27 16)					
OCT , 1983					
06...	1555	7.7	12.5	21.0	313
NOV					
03...	1425	7.4	9.0	19.0	317
DEC					
02...	1150	5.4	.0	-1.5	353
JAN , 1984					
18...	1000	5.1	.0	--	369
FEB					
01...	1435	7.1	.0	8.5	317
MAR					
01...	1420	6.5	.5	4.0	340
APR					
10...	1425	32	9.0	17.0	197
MAY					
09...	1050	95	7.0	21.5	158
JUN					
19...	1130	93	9.0	21.0	248
JUL					
11...	1540	36	19.0	21.0	280
AUG					
22...	1440	23	19.5	27.5	300
SEP					
21...	1150	9.2	17.0	27.0	330
06423500 - CHEYENNE R NEAR WASTA SD (LAT 44 04 52 LONG 102 24 03)					
NOV , 1983					
09...	0930	138	7.0	--	1980
DEC					
06...	1430	102	.0	--	2000
JAN , 1984					
04...	1000	64	.0	--	1770
FEB					
09...	0930	232	.0	--	1220
MAR					
14...	1145	144	6.0	--	1770

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

06425100 - ELK CR NR RAPID CITY SD (LAT 44 14 25 LONG 103 09 05)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
11...	1030	2.7	11.0	10.0	1040
NOV					
04...	1200	3.4	10.5	22.0	1100
DEC					
01...	1400	2.9	.5	-2.5	1250
JAN , 1984					
10...	1315	1.9	.5	8.5	1230
FEB					
03...	1215	7.2	.5	4.5	1160
MAR					
09...	1025	3.9	.0	--	1130
APR					
18...	0930	3.6	10.5	13.0	1340
MAY					
10...	1325	55	13.0	--	880
JUN					
11...	1015	259	12.5	16.0	500
JUL					
03...	0950	26	21.0	24.0	920
AUG					
17...	1710	7.0	23.5	24.5	895
SEP					
17...	1630	6.8	20.5	28.0	960

06425500 - ELK CR NEAR ELM SPRINGS SD (LAT 44 14 54 LONG 102 30 10)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
MAR , 1984					
09...	1535	7.6	1.0	.0	2680
APR					
10...	1335	4.9	18.5	18.5	2200
30...	1025	315	1.0	9.5	840
MAY					
18...	1335	29	21.5	24.5	1550
JUN					
04...	1120	11	20.0	19.5	1840
JUL					
03...	1515	28	25.0	19.0	1080
AUG					
06...	1420	3.6	26.5	28.5	1760

06428500 - BELLE FOURCHE R AT WY-SD STATE LINE (LAT 44 44 59 LONG 104 02 49)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
05...	1635	23	15.0	20.0	1960
26...	0815	35	6.5	4.5	--
NOV					
08...	1545	23	6.0	6.5	1800
DEC					
14...	0940	13	.0	4.0	2350
JAN , 1984					
13...	1005	16	.0	2.0	2450
17...	1645	13	.5	-18.0	--
FEB					
08...	1045	24	.0	11.0	1800
MAR					
07...	0900	40	.5	--	1900
APR					
05...	0730	73	6.5	7.5	--
17...	1545	72	15.5	18.5	1480
MAY					
07...	1600	840	8.0	13.5	870
JUN					
07...	0855	92	16.0	19.5	1550
JUL					
18...	0945	68	17.5	24.5	1880
AUG					
08...	0815	73	21.5	22.5	--
15...	0935	30	20.0	24.5	1810
SEP					
13...	1725	21	19.0	19.5	2230

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
06430900 - MURRAY DITCH AT WY-SD STATE LINE (LAT 44 34 35 LONG 104 02 58)					
OCT , 1983					
04...	1510	5.7	14.0	20.0	1340
JUL , 1984					
18...	1800	24	16.5	31.0	1470
AUG					
15...	1700	11	18.0	24.0	1610
SEP					
12...	1145	13	15.0	19.0	1380
06430500 - REDWATER CR AT WY-SD STATE LINE (LAT 44 34 26 LONG 104 02 54)					
OCT , 1983					
04...	1625	32	12.5	20.5	1380
NOV					
07...	1615	41	6.5	9.0	--
DEC					
12...	1325	35	4.0	-2.5	1420
JAN , 1984					
11...	1600	18	4.5	4.0	1430
FEB					
06...	1600	35	7.0	12.5	1380
MAR					
05...	1610	35	6.5	-1.0	1400
29...	1530	34	9.0	8.5	1460
MAY					
09...	0930	58	10.0	19.0	1320
JUN					
05...	1600	46	16.0	18.5	1360
JUL					
18...	1645	11	18.0	33.0	1190
AUG					
15...	1500	15	18.5	31.5	1850
SEP					
12...	1415	24	15.5	20.5	1460
06431500 - SPEARFISH CR AT SPEARFISH SD (LAT 44 28 57 LONG 103 51 40)					
OCT , 1983					
04...	1100	56	7.0	18.0	430
NOV					
07...	1230	55	6.0	8.5	430
DEC					
12...	1040	45	4.5	-1.0	430
JAN , 1984					
11...	1400	52	4.0	7.5	480
FEB					
06...	1350	50	4.0	18.0	430
MAR					
05...	1345	50	2.0	--	410
APR					
17...	1225	66	6.0	19.0	410
MAY					
02...	1305	68	4.0	10.5	430
17...	1030	167	7.0	16.5	280
JUN					
05...	1350	93	12.0	18.0	370
JUL					
19...	0850	63	7.0	20.0	473
AUG					
27...	1345	56	12.0	28.5	373
SEP					
12...	0920	43	10.0	17.0	426

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

06433000 - REDWATER RIVER ABOVE BELLE FOURCHE SD (LAT 44 40 02 LONG 103 50 20)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
06...	0840	156	10.0	9.0	1190
NOV					
09...	1105	170	6.0	17.0	1160
DEC					
12...	1615	159	.0	-4.0	1160
JAN , 1984					
13...	1530	166	1.5	-1.0	1270
FEB					
08...	1555	159	5.5	12.5	1280
MAR					
07...	1450	151	3.0	-2.0	1180
APR					
04...	1430	161	10.0	15.0	1240
MAY					
09...	1235	269	10.5	21.5	1180
JUN					
07...	1130	145	15.0	17.5	1040
JUL					
16...	1730	43	26.0	32.5	1250
AUG					
16...	1640	36	23.5	27.5	1280
SEP					
14...	1025	98	14.0	14.5	1250

06433500 - HAY CR AT BELLE FOURCHE SD (LAT 44 40 01 LONG 103 50 46)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
FEB , 1984					
06...	1710	.09	--	--	3000
MAR					
07...	1550	.18	3.0	-2.0	3400
APR					
04...	1545	1.1	9.5	15.0	3800
MAY					
02...	1455	16	4.0	9.5	1700
JUN					
07...	1225	.80	17.5	17.0	3450

06434500 - INLET CANAL NEAR BELLE FOURCHE SD (LAT 44 42 14 LONG 103 49 23)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
06...	1100	170	10.5	14.5	1360
NOV					
09...	0900	180	4.5	.5	1220
DEC					
14...	1340	164	.0	>-5.0	1280
JAN , 1984					
13...	1330	199	1.5	-2.0	1300
MAR					
07...	1230	180	2.0	-2.0	1380
APR					
18...	1500	235	14.0	16.0	1230
MAY					
07...	1215	1190	8.5	14.0	920
JUN					
07...	1515	246	16.0	21.0	1280
JUL					
18...	1415	77	24.5	32.0	1380
AUG					
16...	1130	67	21.5	23.5	1650
SEP					
13...	1140	117	16.0	17.0	1440

> More than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

06436000 - BELLE FOURCHE R NEAR FRUITDALE SD (LAT 44 41 27 LONG 103 44 14)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	TEMPERATURE (DEG C)	TEMPERATURE, AIR (DEG C)	SPECIFIC CONDUCTANCE (UMHOS)
NOV , 1983					
09...	1300	6.8	7.0	--	2490
DEC					
01...	1315	4.0	1.0	--	2570
JAN , 1984					
05...	1445	3.9	.0	--	2330
FEB					
08...	1145	3.4	2.0	--	1820
MAR					
12...	1515	3.1	2.5	--	2470
APR					
13...	1030	3.0	10.0	--	2300
MAY					
02...	1130	13	6.0	--	2010
04...	0600	157	--	--	--
05...	0600	660	--	--	--
06...	1845	252	--	--	--
07...	1230	322	9.0	--	940
JUN					
07...	1130	7.6	19.5	--	1910
10...	1915	3100	--	--	--
11...	1445	3020	14.0	--	755
JUL					
10...	1300	21	24.0	--	1620

06436170 - WHITEWOOD CREEK AT DEADWOOD SD (LAT 44 22 48 LONG 103 43 25)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	TEMPERATURE (DEG C)	TEMPERATURE, AIR (DEG C)	SPECIFIC CONDUCTANCE (UMHOS)
OCT , 1983					
06...	1540	18	10.5	26.5	980
NOV					
09...	1615	18	7.0	9.5	1030
DEC					
15...	1440	11	4.0	-4.0	760
JAN , 1984					
11...	1135	12	4.0	4.5	--
FEB					
06...	1120	11	4.0	10.5	810
MAR					
05...	1100	15	3.5	7.5	1010
APR					
17...	1035	40	8.0	15.0	570
MAY					
02..	1035	43	4.0	6.0	570
JUN					
05...	1110	54	12.0	15.5	500
JUL					
19...	1135	23	11.0	20.5	728
AUG					
28...	1055	16	18.0	30.5	840
SEP					
14...	1615	13	15.0	12.5	805

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

06436180 - WHITEWOOD CR ABOVE WHITEWOOD SD (LAT 44 26 32 LONG 103 37 44)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
25...	1500	17	7.5	--	706
NOV					
28...	1040	12	.0	--	809
JAN , 1984					
03...	1100	12	--	--	--
FEB					
07...	0945	12	.0	--	686
MAR					
12...	0900	17	.5	--	790
APR					
10...	0945	38	6.5	--	530
MAY					
03...	1700	104	--	--	--
03...	2300	126	--	--	--
04...	0500	120	--	--	--
04...	1200	104	7.0	--	363
JUN					
06...	1100	48	13.0	--	450
09...	1830	107	--	--	--
09...	2130	271	--	--	--
10...	0930	229	--	--	--
10...	1930	229	--	--	--
14...	0400	366	--	--	--
JUL					
09...	0915	39	--	--	--
AUG					
07...	1245	16	--	--	--

06436190 - WHITEWOOD CREEK NEAR WHITEWOOD SD (LAT 44 32 30 LONG 103 34 16)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
27...	0900	22	8.0	--	--
NOV					
28...	1330	12	1.0	--	1100
JAN , 1984					
03...	1315	12	--	--	--
FEB					
07...	1100	16	4.5	--	1020
08...	1045	16	--	--	--
MAR					
12...	1030	22	.0	--	965
APR					
11...	0945	49	7.5	--	636
MAY					
08...	1430	124	13.0	--	479
JUN					
06...	1330	62	19.5	--	584
JUL					
09...	1230	39	22.0	--	786
AUG					
07...	0945	21	19.0	--	870

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	TEMPERATURE (DEG C)	TEMPERATURE, AIR (DEG C)	SPECIFIC CONDUCTANCE (UMHOS)
06436198 - WHITEWOOD CR ABOVE VALE SD (LAT 44 37 04 LONG 103 28 52)					
OCT , 1983					
28...	1245	19	10.5	--	1170
NOV					
28...	1430	8.9	.0	--	1310
JAN , 1984					
03...	1430	12	--	--	--
FEB					
07...	1245	18	--	--	--
MAR					
12...	1230	30	--	--	--
APR					
12...	1045	49	9.0	--	730
MAY					
03...	1745	238	--	--	--
04...	0545	238	--	--	--
04...	1415	205	9.5	--	487
JUN					
07...	1330	59	--	--	--
09...	2130	179	--	--	--
10...	0230	990	--	--	--
10...	1415	502	12.0	--	459
11...	0715	274	--	--	--
11...	1700	274	20.0	--	550
14...	0830	323	--	--	--
14...	1215	323	19.0	--	542
JUL					
10...	1100	38	19.5	--	939
AUG					
06...	1445	23	28.0	--	880
SEP					
20...	1600	9.1	--	--	--
06436760 - HORSE CR ABOVE VALE SD (LAT 44 39 08 LONG 103 21 59)					
OCT , 1983					
06...	1355	18	12.0	23.0	2350
NOV					
09...	1415	3.3	6.0	5.5	4400
DEC					
13...	1550	2.8	.0	-3.0	5500
JAN , 1984					
12...	1625	4.5	.0	-3.5	5600
FEB					
07...	1605	16	1.0	12.5	2250
MAR					
06...	1545	4.7	.5	-1.0	3300
APR					
04...	1110	11	6.5	10.0	3600
MAY					
10...	1010	310	11.0	21.0	1000
JUN					
06...	1655	73	19.0	20.0	1800
JUL					
16...	1330	68	25.0	33.0	1930
AUG					
13...	1250	61	26.0	36.0	1890
SEP					
10...	1440	52	16.0	16.0	1900

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
06437000 - BELLE FOURCHE R NEAR STURGIS SD (LAT 44 30 47 LONG 103 08 11)					
NOV , 1983					
01...	1230	61	11.5	--	--
DEC					
06...	1000	29	.0	--	3190
JAN , 1984					
05...	1000	14	.5	--	3570
FEB					
10...	1045	68	.0	--	2250
MAR					
13...	1115	61	4.5	--	2260
APR					
18...	0830	58	11.0	--	1860
MAY					
02...	1430	1190	2.5	--	1740
06...	1500	2610	--	--	--
07...	1500	2130	10.0	--	932
JUN					
08...	1130	390	18.5	--	1630
10...	0415	1310	--	--	--
10...	1800	5180	13.0	--	1180
10...	1830	5180	--	--	--
12...	1145	4120	15.5	--	940
JUL					
11...	1230	241	27.0	--	1680
AUG					
17...	1300	327	24.5	--	1760
SEP					
20...	1045	274	17.0	19.5	1730
06438000 - BELLE FOURCHE R NEAR ELM SPRINGS SD (LAT 44 22 11 LONG 102 33 56)					
OCT , 1983					
12...	1345	80	10.0	12.5	2140
NOV					
04...	0945	60	11.0	--	2650
29...	1030	35	3.0	--	2860
DEC					
07...	1500	35	.0	-2.5	3600
JAN , 1984					
04...	0945	2.0	.0	--	4020
FEB					
09...	1615	104	.0	--	2260
MAR					
09...	1315	61	.0	--	2420
APR					
10...	1530	84	16.5	18.5	2700
19...	1145	59	15.0	--	2130
MAY					
03...	0945	2850	--	--	--
JUN					
04...	1430	344	20.0	18.0	1850
08...	1430	450	20.5	--	1670
JUL					
11...	1015	307	23.0	--	1670
AUG					
09...	1500	309	25.0	--	1730
06439000 - CHERRY CR NEAR PLAINVIEW SD (LAT 44 44 38 LONG 102 03 11)					
FEB					
03...	0830	12	.0	5.0	680
29...	1105	2.8	1.5	2.5	2400
MAR					
29...	0820	4.5	4.0	1.0	2350
MAY					
04...	1050	778	8.0	8.0	1150
23...	0855	7.0	13.0	17.0	1960
JUN					
21...	0830	1450	--	--	--
JUL					
18...	0755	11	21.5	19.0	2120

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
06439300 - CHEYENNE R AT CHERRY CREEK SD (LAT 44 36 10 LONG 101 29 24)					
OCT , 1983					
28...	1200	171	11.5	16.0	1720
NOV					
08...	1500	166	7.0	--	2400
30...	1045	81	.0	--	2830
JAN , 1984					
06...	1045	66	.0	--	2780
FEB					
13...	1030	410	--	--	--
MAR					
15...	1100	390	1.5	--	2170
APR					
25...	1215	243	10.0	--	2020
MAY					
23...	1130	1210	17.0	22.0	1360
AUG					
17...	1120	339	26.5	28.0	2130
06439430 - COTTONWOOD CRK NR CHERRY CREEK SD (LAT 44 40 28 LONG 101 24 16)					
FEB , 1984					
03...	1150	6.2	1.0	7.0	--
MAR					
29...	1250	.41	4.5	5.5	1280
JUN					
19...	1120	73	21.5	23.0	850
21...	1225	15	24.0	25.0	1060
06441000 - BAD R NEAR MIDLAND SD (LAT 44 04 01 LONG 101 09 36)					
JUN , 1984					
11...	1010	38	16.0	13.5	825
06441500 - BAD R NEAR FORT PIERRE SD (LAT 44 19 36 LONG 100 23 02)					
FEB , 1984					
24...	1000	80	.5	3.0	2700
MAR					
22...	1500	115	6.0	6.0	--
APR					
23...	1410	8.2	14.5	22.0	--
MAY					
24...	1340	2.4	19.0	18.0	2650
JUN					
04...	1100	11600	--	18.0	--
04...	1715	9160	--	16.0	--
05...	1230	4940	18.5	23.5	--
06...	1050	1030	18.0	17.0	--
07...	1450	420	20.5	22.5	1160
21...	1525	1200	22.5	26.5	1460
JUL					
23...	1155	.36	25.0	22.0	2770
31...	0830	5.1	25.5	25.5	2820
06442000 - MEDICINE KNOLL CR NEAR BLUNT SD (LAT 44 33 46 LONG 099 54 50)					
JUN , 1984					
06...	0955	6.7	20.0	21.5	1060
24...	1020	94	23.5	25.0	450
JUL					
02...	1000	19	23.0	21.5	730

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	TEMPERATURE (DEG C)	TEMPERATURE, AIR (DEG C)	SPECIFIC CONDUCTANCE (UMHOS)
06442500 - MEDICINE CR AT KENNEBEC SD (LAT 43 54 17 LONG 099 52 35)					
FEB , 1984					
23...	1605	2.0	2.0	5.5	1220
APR					
19...	1150	28	12.5	16.0	1080
MAY					
17...	0950	1.3	17.5	20.0	1900
JUN					
13...	1440	.75	26.5	24.0	1640
18...	1400	401	23.0	28.5	610
AUG					
08...	1410	.93	28.0	34.5	480
06442950 - CROW CR NEAR GANN VALLEY SD (LAT 43 59 29 LONG 099 13 07)					
FEB , 1984					
23...	1110	169	3.5	.0	350
APR					
18...	1600	56	13.0	14.5	820
MAY					
17...	1120	4.5	20.0	19.0	1460
JUN					
13...	1300	55	23.5	21.5	940
AUG					
08...	1150	1.7	30.0	25.0	810
06446000 - WHITE R NEAR OGLALA SD (LAT 43 15 17 LONG 102 49 29)					
OCT , 1983					
04...	1445	4.5	13.0	20.5	720
NOV					
07...	1240	18	7.5	12.0	930
DEC					
07...	1435	18	.0	-3.5	876
JAN , 1984					
09...	1320	24	.0	1.0	768
FEB					
06...	1155	73	.0	11.5	616
MAR					
05...	1320	86	.0	1.0	636
APR					
05...	0935	75	5.0	9.5	648
MAY					
03...	1655	480	8.5	16.5	1010
JUN					
13...	1115	85	11.5	23.5	1690
JUL					
16...	1235	42	23.5	27.0	740
AUG					
15...	1305	1.8	26.5	33.0	1320
06447000 - WHITE R NEAR KADOKA SD (LAT 43 45 09 LONG 101 31 28)					
OCT , 1983					
04...	1045	145	11.5	17.5	390
26...	1035	27	7.0	12.0	370
DEC					
19...	1150	28	.0	-16.0	980
JAN , 1984					
17...	1030	18	.0	-3.0	490
MAR					
13...	1110	240	2.0	5.5	710
APR					
16...	1200	129	12.5	12.0	1040
MAY					
15...	1045	240	20.0	19.0	870
JUN					
11...	1405	1860	16.0	20.5	500
JUL					
11...	1200	125	26.0	30.0	690
AUG					
06...	1015	22	23.5	25.0	490
SEP					
04...	1110	1.5	18.5	19.0	730

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MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

06447500 - LITTLE WHITE R NEAR MARTIN SD (LAT 43 10 00 LONG 101 37 47)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
04...	1305	17	16.0	22.5	250
26...	1630	13	9.5	24.0	270
NOV					
21...	1230	18	--	.0	--
DEC					
19...	1610	13	.0	-21.0	305
JAN , 1984					
17...	1300	18	--	--	--
FEB					
16...	0810	41	.0	-4.0	250
MAR					
13...	1250	32	3.5	14.5	550
APR					
17...	0750	26	9.0	6.5	540
MAY					
15...	1315	21	18.5	20.5	480
JUN					
11...	1940	13	18.5	16.0	360
JUL					
12...	0755	9.5	21.5	24.0	260
AUG					
06...	1540	24	24.5	25.5	220
SEP					
04...	1610	4.6	20.0	21.5	350

06449000 - LAKE CR BELOW REFUGE NEAR TUTHILL SD (LAT 43 08 46 LONG 101 30 38)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
04...	1400	15	18.0	24.0	470
26...	1505	13	11.0	24.0	--
NOV					
21...	1410	60	1.0	.0	490
DEC					
19...	1405	30	.0	-17.0	610
JAN , 1984					
17...	1440	17	.0	-18.0	--
FEB					
15...	1555	8.6	5.0	4.0	450
MAR					
13...	1430	42	2.0	14.5	500
APR					
16...	1605	56	8.5	15.0	340
MAY					
15...	1450	32	19.0	19.0	540
JUN					
11...	1745	7.8	19.0	19.5	420
JUL					
12...	0855	5.5	24.0	25.5	460
AUG					
06...	1410	.97	26.0	23.5	520
SEP					
04...	1445	.22	25.0	22.0	580

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
06449100 - LITTLE WHITE R NEAR VETAL SD (LAT 43 06 03 LONG 101 43 49)					
OCT , 1983					
04...	1600	42	18.0	24.5	360
26...	1320	41	11.5	19.0	400
DEC					
20...	1140	47	.0	-22.0	--
JAN , 1984					
18...	0845	37	.0	-20.0	--
FEB					
15...	1420	66	2.0	2.0	320
MAR					
14...	0905	119	4.5	11.5	440
APR					
16...	1340	124	--	15.0	380
MAY					
16...	0725	87	18.0	18.5	410
JUN					
11...	1620	40	20.5	22.0	400
JUL					
12...	1020	37	24.5	26.5	380
AUG					
06...	1230	21	27.5	31.5	320
SEP					
04...	1315	16	22.0	20.5	310
06449300 - LITTLE WHITE R ABV ROSEBUD SD 38N30W18DBC (LAT 43 15 47 LONG 100 55 02)					
OCT , 1983					
05...	1020	91	12.0	14.5	346
NOV					
25...	0850	127	.0	-5.0	375
DEC					
20...	1435	84	.0	-18.0	360
JAN , 1984					
18...	1050	72	.5	-15.0	353
FEB					
16...	1100	127	3.0	10.5	274
MAR					
14...	1030	184	8.0	12.5	358
APR					
17...	1025	206	11.0	12.0	340
MAY					
16...	0920	156	19.0	20.5	345
JUN					
12...	0735	101	18.0	16.0	334
JUL					
12...	1200	79	25.0	28.5	310
AUG					
07...	0725	54	23.0	22.0	291
SEP					
05...	0840	48	14.5	13.0	277
06449400 - ROSEBUD CR AT ROSEBUD SD (LAT 43 14 09 LONG 100 51 12)					
OCT , 1983					
05...	0940	6.6	13.5	15.0	280
27...	1030	7.1	10.0	18.0	340
DEC					
22...	0840	6.5	.0	-25.0	400
FEB , 1984					
16...	1245	7.4	5.0	6.0	350
MAR					
14...	1150	9.9	8.5	13.5	440
APR					
17...	1255	8.7	13.5	16.0	360
MAY					
16...	1040	8.2	19.5	27.0	340
JUN					
12...	0915	7.8	17.0	18.0	340
JUL					
12...	1250	8.4	27.0	32.5	320
AUG					
07...	0915	5.8	23.0	22.0	320
SEP					
05...	1030	5.6	17.0	17.0	330

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

06449500 - LITTLE WHITE R NEAR ROSEBUD SD (LAT 43 19 32 LONG 100 53 00)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
05...	1230	98	12.5	15.5	330
27...	1130	100	11.5	20.0	340
DEC					
21...	1510	92	.0	-25.0	--
FEB , 1984					
16...	1505	159	.0	--	310
MAR					
14...	1255	185	8.0	13.0	470
APR					
17...	1415	227	14.5	15.5	360
MAY					
16...	1140	171	20.5	27.5	360
JUN					
12...	1015	110	19.5	20.0	350
JUL					
12...	1350	97	24.5	32.5	330
AUG					
07...	1025	66	25.0	29.5	300
SEP					
05...	1220	50	19.0	26.0	290

06450500 - LITTLE WHITE R BELOW WHITE RIVER SD (LAT 43 36 04 LONG 100 44 52)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
05...	1425	91	12.5	14.5	360
27...	1325	87	14.0	26.0	380
DEC					
22...	1435	104	.0	-22.0	--
JAN , 1984					
19...	1000	45	.0	-21.0	--
MAR					
14...	1430	326	6.5	13.0	520
APR					
17...	1615	224	15.0	15.0	410
MAY					
16...	1425	145	20.0	21.5	460
JUN					
12...	1205	105	22.5	23.0	420
JUL					
12...	1500	18	25.0	32.5	380
AUG					
07...	1215	54	--	33.0	320
SEP					
05...	1440	56	24.0	30.0	310

06452000 - WHITE R NEAR OACOMA SD (LAT 43 44 54 LONG 099 33 22)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
06...	1550	88	17.5	14.5	570
DEC					
27...	1200	85	.0	-10.0	778
FEB , 1984					
23...	1335	1190	.5	5.5	534
APR					
19...	0910	823	11.0	9.0	795
JUN					
13...	0945	665	19.0	18.0	582
AUG					
08...	0900	87	22.0	19.5	724

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

06453255 - CHUTEAU CREEK NR AVON SD (LAT 42 55 24 LONG 098 06 21)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
26...	1610	2.8	12.0	24.0	1450
NOV					
15...	1230	3.0	5.0	6.0	1020
DEC					
12...	1520	3.4	.5	-8.0	1600
JAN , 1984					
19...	0900	2.6	.0	-15.0	1540
FEB					
15...	1620	8.5	1.0	1.0	2140
MAR					
14...	0835	9.2	1.0	3.0	1620
27...	1450	498	5.0	6.0	1380
30...	0835	282	3.0	6.0	1190
APR					
05...	1300	426	7.5	13.5	1400
15...	1805	2320	10.5	5.5	950
18...	1110	778	14.0	22.5	990
MAY					
03...	1300	658	11.5	13.0	1550
JUN					
07...	1100	70	21.0	23.0	2150
14...	0930	1260	23.0	24.0	940
24...	1520	2840	25.0	30.0	560
JUL					
20...	0905	52	23.0	23.0	1550
AUG					
23...	0915	8.5	18.0	21.0	1500
SEP					
26...	0905	5.3	8.0	.0	1550

06464500 - KEYA PAHA R AT WEWELA SD (LAT 43 01 42 LONG 099 46 45)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
06...	1200	49	12.0	13.5	360
28...	1050	50	7.5	8.0	470
NOV					
25...	1305	64	--	1.0	--
DEC					
23...	1320	41	.0	-23.0	460
JAN , 1984					
19...	1515	31	.0	-18.0	--
FEB					
17...	1030	207	.0	1.5	--
APR					
18...	1150	366	11.5	15.5	550
MAY					
16...	1800	141	21.0	26.0	540
JUN					
12...	1745	109	23.5	20.5	510
JUL					
13...	1010	51	25.0	24.0	420
AUG					
07...	1715	36	31.0	32.5	410
SEP					
06...	0830	23	15.5	14.0	440

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

06467500 - MISSOURI R AT YANKTON SD (LAT 42 51 58 LONG 097 23 37)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
12...	1035	38600	15.0	8.5	780
NOV					
08...	1100	37700	12.0	8.5	800
DEC					
06...	1025	26000	--	-6.0	820
FEB , 1984					
08...	1445	17600	2.0	3.5	760
MAR					
07...	1105	13200	1.5	-5.0	730
APR					
16...	1550	15400	9.5	15.0	780
MAY					
15...	1000	16300	13.5	16.0	840
JUN					
13...	1115	12500	20.0	25.0	850
JUL					
11...	1115	36400	23.0	30.0	780
26...	1140	45600	24.0	26.0	800
SEP					
04...	1710	47100	23.0	24.5	800

06471000 - JAMES R AT COLUMBIA SD (LAT 45 36 13 LONG 098 18 36)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
NOV , 1983					
22...	1545	162	1.0	-5.0	710
JAN , 1984					
25...	1250	3.8	.0	-3.0	1250
MAR					
22...	1230	90	.0	5.0	1240
MAY					
21...	1230	491	17.0	16.0	620
JUL					
03...	0935	258	23.5	20.5	655
SEP					
26...	1450	29	7.5	8.5	735

06471200 - MAPLE R AT ND-SD STATE LINE (LAT 45 56 20 LONG 098 27 08)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
FEB , 1984					
22...	1650	5.1	.0	-2.0	280
MAR					
21...	1555	3.7	.0	.0	440
29...	0835	907	1.5	2.0	190
30...	0830	569	1.5	1.0	210
APR					
03...	1305	390	7.0	11.0	280
30...	1645	25	8.0	10.5	880
JUN					
06...	1515	3.9	20.0	--	--
JUL					
02...	1435	2.7	25.0	30.0	1140

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1984

06471500 - ELM R AT WESTPORT SD (LAT 45 39 22 LONG 098 29 48)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
26...	1545	5.9	10.0	17.0	580
NOV					
22...	1145	4.9	.5	-2.5	410
DEC					
21...	1130	3.5	.0	-20.0	710
JAN , 1984					
25...	0955	4.8	.0	-7.0	830
26...	1100	4.3	.0	-3.0	830
FEB					
23...	1150	160	1.0	1.0	310
MAR					
22...	1005	16	1.0	7.0	390
28...	1700	1560	1.5	3.0	230
29...	1115	1480	1.5	4.0	220
30...	1045	987	2.0	4.0	230
APR					
03...	1500	668	6.5	11.0	280
30...	1350	68	7.5	9.5	700
JUN					
06...	1650	7.8	20.5	23.5	700
JUL					
02...	1700	24	29.0	31.0	610
AUG					
01...	1445	.52	27.0	27.5	940
27...	1525	5.8	26.0	37.0	1040
SEP					
26...	1315	6.9	10.0	12.5	660

06473000 - JAMES R AT ASHTON SD (LAT 45 00 02 LONG 098 28 57)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
27...	1300	122	9.0	24.0	740
NOV					
23...	1055	195	1.0	-10.0	610
DEC					
22...	1145	34	.0	-22.0	1100
JAN , 1984					
26...	1555	5.8	.0	-1.0	1500
FEB					
24...	1130	79	.5	3.0	460
MAR					
23...	1105	89	.0	9.0	690
29...	1525	214	1.5	8.0	500
APR					
04...	0855	585	4.0	6.0	590
19...	1135	1090	12.5	13.5	620
MAY					
01...	1015	1150	8.0	12.5	460
JUN					
07...	1110	534	20.5	21.0	820
JUL					
03...	1330	602	26.0	26.5	870
AUG					
02...	1150	182	27.5	28.0	880
28...	1135	85	25.5	27.5	780
SEP					
27...	1020	28	8.0	6.0	840

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
06475000 - JAMES R NEAR REDFIELD SD (LAT 44 54 33 LONG 098 27 34)					
OCT , 1983					
27...	1515	122	10.0	26.0	740
NOV					
23...	1320	174	1.0	-2.0	570
DEC					
30...	1315	19	.0	-2.0	1230
JAN , 1984					
27...	1100	4.8	.0	-8.0	1640
MAR					
23...	1350	116	.0	8.0	720
APR					
04...	1215	689	6.0	12.0	700
19...	1400	1360	13.5	15.0	640
JUL					
03...	1600	1130	27.0	31.0	810
AUG					
02...	1310	169	29.0	31.0	940
28...	1320	95	25.5	29.5	810
SEP					
27...	1630	31	7.5	8.0	860
06476000 - JAMES R AT HURON SD (LAT 44 21 49 LONG 098 11 56)					
OCT , 1983					
21...	1035	121	9.0	9.5	730
NOV					
30...	1500	137	.5	-4.5	830
DEC					
08...	1430	197	.0	-9.0	830
JAN , 1984					
05...	1330	41	.0	6.0	1080
FEB					
28...	1415	394	.0	-2.0	800
MAR					
26...	1430	412	.5	5.5	640
APR					
05...	1455	767	7.0	18.0	440
25...	0800	1140	12.5	10.0	730
30...	1500	1100	9.0	11.0	570
MAY					
31...	1045	745	18.0	20.5	680
JUN					
19...	1215	1260	23.0	23.0	910
21...	1605	3170	23.0	22.0	620
25...	1505	2140	25.0	29.0	--
29...	0800	1750	24.5	20.0	780
JUL					
31...	1140	285	25.5	33.5	980
AUG					
24...	1345	90	23.0	27.0	960
SEP					
17...	1410	69	16.5	28.5	1020
06476500 - SAND CR NEAR ALPENA SD (LAT 44 09 15 LONG 098 26 06)					
MAR , 1984					
06...	1040	6.6	.5	-8.0	490
25...	1330	70	2.0	12.0	300
27...	1005	41	2.0	5.0	370
MAY					
17...	1655	2.5	20.5	23.0	1550
JUN					
18...	1545	35	27.0	33.0	950
JUL					
25...	1450	1.1	26.0	29.0	1400
AUG					
23...	1625	.41	24.5	27.5	1400

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

06477000 - JAMES R NEAR FORESTBURG SD (LAT 43 58 26 LONG 098 04 14)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	TEMPERATURE (DEG C)	TEMPERATURE, AIR (DEG C)	SPECIFIC CONDUCTANCE (UMHOS)
NOV , 1983					
21...	1040	182	3.0	3.0	790
JAN , 1984					
06...	1225	37	.0	5.0	1140
FEB					
10...	1335	20	.5	2.0	1380
MAR					
09...	1135	327	.5	-8.0	640
30...	1625	1250	2.5	13.0	500
APR					
17...	1835	1730	12.5	15.0	610
MAY					
14...	1110	1120	--	19.0	570
JUN					
14...	1745	1040	22.0	25.0	870
22...	1520	3790	25.0	30.0	580
25...	1030	6210	25.0	27.0	450
JUL					
25...	1105	483	25.0	28.0	1020
SEP					
12...	1250	101	20.0	25.0	1070
29...	1105	138	25.5	20.5	1060

06477500 - FIRESTEEL CR NEAR MOUNT VERNON SD (LAT 43 46 30 LONG 098 14 33)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	TEMPERATURE (DEG C)	TEMPERATURE, AIR (DEG C)	SPECIFIC CONDUCTANCE (UMHOS)
OCT , 1983					
13...	1445	.08	13.5	10.5	2450
NOV					
09...	1445	.19	6.0	5.0	2430
DEC					
07...	1305	.27	.5	-12.0	2530
JAN , 1984					
04...	1150	.23	.0	3.0	2800
FEB					
07...	1115	.92	.0	-2.0	1660
MAR					
06...	1310	34	.5	-7.0	510
25...	1315	571	4.5	14.0	315
APR					
13...	1050	1210	6.5	6.0	490
MAY					
17...	1415	11	20.5	25.0	1710
JUN					
14...	1440	185	22.5	25.0	720
18...	1300	890	25.0	25.0	450
21...	1205	3340	23.0	21.0	310
23...	1125	2990	24.0	23.0	290
25...	1400	1330	26.0	27.0	360
JUL					
20...	1520	18	26.0	32.0	1420
AUG					
23...	1430	3.3	24.0	26.0	1680
SEP					
12...	0940	.99	18.0	25.0	1780

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
06478052 - ENEMY CR NEAR MITCHELL SD (LAT 43 38 33 LONG 097 59 09)					
NOV , 1983					
07...	1110	.08	10.0	10.5	2680
DEC					
05...	1210	.37	1.0	-4.5	2050
JAN , 1984					
04...	1400	.32	.0	6.0	2250
FEB					
07...	1320	.30	.5	-1.0	2050
MAR					
06...	1525	9.4	.5	-3.0	1790
25...	1535	187	4.5	11.0	970
APR					
13...	1420	2120	5.0	6.0	570
15...	1400	694	12.0	10.0	--
MAY					
14...	1335	22	19.5	22.5	2280
JUN					
18...	1630	633	25.0	27.0	800
21...	1435	3240	22.5	24.0	430
22...	1655	3660	26.0	29.0	360
28...	0935	208	24.0	30.0	1140
JUL					
20...	1225	13	24.0	30.0	2250
AUG					
16...	1500	1.6	25.5	24.0	2300
SEP					
26...	1340	.32	9.5	13.0	2280
06478390 - WOLF CR NEAR CLAYTON SD (LAT 43 22 18 LONG 097 36 12)					
OCT , 1983					
11...	1425	2.6	14.0	14.5	2200
NOV					
09...	1210	5.2	5.5	3.0	2300
DEC					
05...	1440	6.3	.0	-5.0	2550
JAN , 1984					
04...	1625	5.6	.0	2.5	2430
FEB					
07...	1550	4.7	.0	.0	2430
MAR					
08...	1530	14	.5	-7.0	2050
25...	1845	327	2.0	4.5	850
26...	1625	532	1.5	2.0	670
30...	1155	811	2.0	8.0	570
APR					
05...	0950	562	7.0	10.0	710
13...	1715	2740	6.5	6.5	500
20...	1215	290	14.0	18.5	870
30...	1310	434	6.0	9.5	1100
MAY					
14...	1550	65	20.5	20.0	1670
JUN					
13...	1135	500	22.0	23.0	910
18...	1415	1880	25.0	31.0	590
22...	1310	4560	24.0	29.0	360
25...	1545	1160	27.0	31.0	600
27...	1500	586	26.0	29.0	730
AUG					
08...	1555	27	30.0	36.0	1400
SEP					
11...	1105	8.2	14.0	14.0	1900

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1985

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	TEMPERATURE (DEG C)	TEMPERATURE, AIR (DEG C)	SPECIFIC CONDUCTANCE (UMHOS)
06478500 - JAMES R NEAR SCOTLAND SD (LAT 43 11 09 LONG 097 38 07)					
OCT , 1983					
26...	1115	160	10.0	20.0	1070
NOV					
16...	1010	213	4.0	3.0	1240
DEC					
13...	1100	184	.0	-9.0	1220
JAN , 1984					
18...	1205	69	.0	-11.0	1400
FEB					
15...	1200	105	.0	6.0	1650
MAR					
14...	1410	586	.0	6.0	870
26...	1035	2670	1.0	4.5	690
29...	1400	3720	7.5	17.0	770
APR					
14...	1005	11000	6.0	10.0	600
17...	1435	8030	12.5	16.0	670
19...	1625	5940	15.0	26.0	690
MAY					
16...	1200	1600	20.0	30.0	920
JUN					
12...	1235	4060	21.0	27.0	460
12...	1410	4250	21.0	27.0	--
13...	1515	5450	25.0	26.0	650
18...	1200	4290	24.0	28.0	830
21...	1645	12700	24.0	24.0	620
23...	1310	26600	23.0	23.0	430
25...	1330	19400	25.0	27.0	490
29...	1555	10400	27.5	28.5	590
JUL					
10...	1230	3820	25.0	23.0	850
AUG					
16...	1040	465	26.5	26.5	1300
SEP					
11...	1255	149	18.5	19.0	1440
06478513 - JAMES RIVER NR YANKTON SD (LAT 42 59 45 LONG 097 22 10)					
OCT , 1983					
13...	1055	134	9.5	5.5	1160
NOV					
08...	1545	135	10.0	5.5	1140
DEC					
07...	1010	194	.0	-12.0	1250
JAN , 1984					
05...	1510	131	.0	8.0	1430
FEB					
08...	0930	86	.5	-2.5	1840
MAR					
08...	1200	615	.5	-11.0	1200
26...	1325	1730	.0	4.5	800
29...	1025	3790	4.0	8.5	960
APR					
14...	1330	7430	9.5	12.0	700
16...	1850	10600	11.0	15.0	620
19...	1320	7620	13.5	24.0	650
MAY					
15...	1255	2380	17.5	22.0	970
JUN					
12...	1715	2940	21.0	30.0	860
21...	1930	8140	23.0	25.0	620
23...	1800	26200	23.0	26.0	530
25...	1015	23000	23.0	27.0	580
29...	1130	13200	26.0	27.0	530
JUL					
10...	1540	4580	23.0	24.0	790
AUG					
15...	1110	482	27.0	27.0	1360
SEP					
11...	1515	186	20.0	20.0	1440

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
06478540 - LITTLE VERMILLION R NEAR SALEM SD (LAT 43 47 39 LONG 097 22 02)					
MAR , 1984					
06...	1250	.98	.0	-9.0	1250
28...	1255	190	.5	3.0	430
APR					
07...	1115	78	6.5	7.5	590
12...	1035	253	8.0	8.0	770
18...	1140	54	13.0	14.0	780
30...	1055	29	4.0	4.5	1130
MAY					
17...	1100	7.1	18.5	15.0	1290
JUN					
15...	1355	207	22.5	24.0	830
18...	1220	463	25.0	24.0	530
21...	1740	619	23.0	23.0	330
22...	0935	468	21.0	24.0	380
25...	1625	137	28.0	32.0	560
JUL					
10...	1210	10	24.0	20.0	910
AUG					
10...	1035	.05	23.5	25.0	1200
06478690 - WEST FORK VERMILLION R NEAR PARKER SD (LAT 43 24 55 LONG 097 12 18)					
OCT , 1983					
05...	1300	.66	14.0	18.0	1080
NOV					
21...	1405	1.7	2.5	2.0	1540
DEC					
20...	1305	2.9	.0	-25.0	1560
JAN , 1984					
12...	1010	2.1	.0	-7.0	1920
FEB					
06...	1325	1.6	.0	-6.0	2000
MAR					
06...	1545	13	-2.0	-9.0	1690
25...	1250	76	1.0	9.0	1270
28...	1005	595	.0	1.5	640
APR					
12...	1330	2980	8.0	8.0	650
14...	1335	2530	8.5	14.5	560
18...	0915	600	11.5	9.5	720
30...	1525	352	6.0	10.0	1360
MAY					
16...	1545	46	20.5	24.0	1500
JUN					
15...	1150	2040	20.0	21.0	550
20...	1630	2550	24.5	30.0	430
23...	0850	2320	23.0	21.0	460
JUL					
10...	1435	182	24.0	23.0	1160
AUG					
30...	1405	2.0	20.5	23.5	1240
SEP					
24...	1305	1.1	11.5	9.5	1280

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

06479010 - VERMILLION RIVER NR VERMILLION SD (LAT 42 49 02 LONG 096 55 26)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	TEMPERATURE (DEG C)	TEMPERATURE, AIR (DEG C)	SPECIFIC CONDUCTANCE (UMHOS)
OCT , 1983					
06...	0820	60	11.0	12.0	--
12...	1400	57	10.0	13.0	1460
NOV					
08...	1340	60	9.5	6.5	1550
DEC					
06...	1450	84	.0	-8.0	1740
JAN , 1984					
05...	0955	52	.0	4.0	1630
FEB					
09...	0840	64	.5	.5	1700
MAR					
07...	1630	186	--	-11.0	--
22...	1545	295	6.0	6.0	1740
25...	1550	892	3.0	11.5	1300
26...	0835	1760	2.0	4.0	940
26...	1650	1870	1.0	4.5	950
27...	0855	1990	1.0	4.0	930
29...	1030	2210	1.0	3.0	880
APR					
03...	1600	2740	4.0	1.5	1000
04...	0800	2940	3.5	2.5	1010
14...	1645	8870	9.0	11.0	810
15...	0925	10400	8.5	10.0	870
16...	1010	10700	10.0	12.5	790
17...	0930	9450	10.5	12.0	840
19...	1315	5970	14.0	15.0	830
MAY					
01...	0915	2430	7.0	8.0	1100
16...	0855	1920	17.0	18.0	1340
JUN					
13...	1415	1940	22.0	26.0	900
19...	0925	12800	25.5	23.0	680
20...	0930	11300	20.0	27.0	280
21...	1045	14100	24.5	26.0	650
23...	1105	20200	23.5	23.0	560
24...	1135	16900	24.0	25.0	620
29...	0800	6610	25.0	25.0	640
JUL					
11...	1600	1110	24.5	31.0	1120
25...	1300	391	22.5	25.0	1260
AUG					
14...	1415	180	26.0	34.0	1230
SEP					
12...	0935	102	17.5	23.5	1280

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

06479438 - BIG SIOUX R NEAR WATERTOWN SD (LAT 45 00 22 LONG 097 09 53)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
26...	0955	2.1	7.0	9.5	590
NOV					
05...	1145	.67	.5	-3.0	670
22...	1000	10	.5	-2.5	600
DEC					
20...	1220	1.0	.0	-22.0	630
JAN , 1984					
24...	1140	.41	.0	2.0	580
FEB					
22...	1110	3.6	.0	6.0	570
MAR					
21...	1135	8.9	.0	-2.0	550
29...	1735	184	3.5	2.5	240
MAY					
15...	0845	42	15.0	--	710
JUN					
06...	1530	24	20.0	22.0	550
JUL					
20...	0920	8.7	21.0	20.5	600
AUG					
07...	0835	12	23.0	22.0	550
SEP					
13...	0900	1.2	21.0	13.0	580

06479515 - WILLOW CR NEAR WATERTOWN SD (LAT 44 54 17 LONG 097 03 31)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
25...	1820	.22	10.0	13.5	1240
NOV					
22...	0815	2.9	1.0	-1.0	970
DEC					
20...	0930	.08	.0	-20.0	1380
JAN , 1984					
24...	0945	.10	.0	-1.0	1360
FEB					
22...	0925	16	.5	3.0	300
MAR					
21...	0915	14	.0	-2.0	660
29...	1545	66	2.5	8.5	380
APR					
02...	1215	127	4.0	9.5	380
MAY					
14...	1610	51	18.5	20.0	690
JUN					
12...	1135	77	16.5	21.5	760
JUL					
19...	1745	23	25.0	27.0	720
AUG					
06...	1520	16	26.0	31.0	720
SEP					
12...	1600	2.4	25.0	31.0	840

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

06479525 - BIG SIOUX R NEAR CASTLEWOOD SD (LAT 44 43 54 LONG 097 02 39)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983 25...	1530	5.6	10.0	15.0	1010
NOV 21...	1725	14	2.0	2.5	720
DEC 19...	1545	1.2	.0	-18.0	1220
JAN , 1984 23...	1645	.60	.0	-3.0	900
FEB 21...	1530	34	.5	9.0	670
MAR 20...	1605	16	.0	.0	890
29...	1340	161	1.5	1.5	310
MAY 14...	1345	194	17.0	18.0	760
JUN 07...	1520	712	19.5	21.0	390
JUL 19...	0930	95	22.0	22.0	690
AUG 06...	1135	94	26.0	30.0	680
SEP 12...	1410	15	23.0	27.0	850

06479529 - STRAY HORSE CR NEAR CASTLEWOOD SD (LAT 44 43 52 LONG 096 57 23)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983 25...	1305	.29	8.5	12.5	1100
NOV 21...	1635	5.3	1.5	2.0	1020
DEC 19...	1315	.52	.0	-19.0	1250
JAN , 1984 23...	1425	.19	.0	-1.0	1750
FEB 21...	1330	30	.5	5.0	400
MAR 20...	1405	7.0	.0	1.0	850
29...	1110	42	2.0	2.0	430
MAY 14...	1130	12	15.0	17.0	1040
JUN 07...	1245	87	19.0	20.0	580
JUL 19...	1125	2.8	23.5	27.0	900
AUG 06...	1310	1.2	26.0	29.0	900
SEP 12...	1235	.36	18.0	25.0	1040

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

06479640 - HIDEWOOD CR NEAR ESTELLINE SD (LAT 44 36 42 LONG 096 54 17)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
25...	1135	.06	8.5	10.0	1100
NOV					
21...	1510	5.6	1.0	1.0	960
JAN , 1984					
23...	1245	.02	.0	1.0	780
FEB					
21...	1130	9.9	.5	5.0	360
MAR					
20...	1200	14	.0	1.0	770
29...	0900	90	.0	-.5	410
APR					
02...	1415	276	4.5	9.0	440
03...	1445	271	5.0	4.0	470
10...	1055	158	5.5	10.5	540
MAY					
15...	1115	59	15.0	17.0	830
JUN					
12...	1355	272	18.5	26.0	690
JUL					
19...	1430	29	23.0	25.5	850
AUG					
07...	1225	13	24.0	28.0	840
SEP					
12...	1115	1.6	16.5	23.0	980

06479980 - MEDARY CREEK NEAR BROOKINGS, SD (LAT 44 13 27 LONG 096 46 06)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
03...	1040	16	13.0	10.5	610
NOV					
21...	1305	201	1.5	1.5	780
DEC					
27...	1705	14	.0	-10.0	850
JAN , 1984					
09...	1210	16	.0	-3.0	650
FEB					
08...	1555	10	.0	-1.0	720
MAR					
09...	1135	40	-1.0	-2.0	720
28...	1735	822	1.0	4.0	420
APR					
02...	1845	572	6.5	7.0	570
13...	1230	1440	7.0	10.0	630
MAY					
15...	1410	329	15.5	19.0	730
JUN					
12...	1715	993	21.5	25.5	530
21...	0935	2590	22.0	22.0	380
27...	1220	230	22.0	24.0	890
JUL					
12...	1445	105	25.5	31.5	800
AUG					
07...	1525	34	25.0	27.5	770
27...	1410	12	25.0	29.0	810
SEP					
27...	0910	14	7.0	5.0	840

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

06480000 - BIG SIOUX RIVER NEAR BROOKINGS SD (LAT 44 10 48 LONG 096 44 55)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
03...	1230	32	14.0	13.0	880
NOV					
21...	1120	398	1.5	1.5	750
DEC					
27...	1425	28	.0	-9.0	1080
JAN , 1984					
09...	1540	45	.0	-6.0	960
FEB					
08...	1315	29	.0	4.0	1050
MAR					
08...	1730	531	-1.0	-7.0	810
28...	1520	2340	1.5	4.0	490
APR					
02...	1700	2960	7.0	7.0	640
MAY					
15...	1640	1090	17.5	20.0	800
JUN					
13...	1020	4240	22.0	22.0	700
20...	1730	6190	23.5	29.0	620
24...	1430	5820	23.0	24.5	560
27...	1525	2510	23.0	27.0	740
JUL					
12...	1240	976	25.5	27.0	820
AUG					
08...	0920	317	25.0	23.0	850
27...	1715	147	27.0	34.0	910
SEP					
26...	1540	178	7.5	15.0	870

06480400 - SPRING CREEK NEAR FLANDREAU SD (LAT 44 07 18 LONG 096 35 19)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
03...	1410	16	16.0	14.0	700
NOV					
22...	1300	58	.0	-3.5	690
DEC					
27...	1235	6.5	.0	-11.0	910
JAN , 1984					
10...	1050	10	-1.0	-11.0	580
FEB					
08...	1000	4.9	.0	-5.0	660
MAR					
08...	1400	18	-2.0	-8.0	700
APR					
03...	0855	148	3.0	1.0	510
13...	1445	337	6.5	10.0	490
MAY					
16...	0855	30	13.0	16.0	690
JUN					
13...	1405	157	22.5	25.5	480
20...	1135	1740	19.0	25.0	240
27...	1655	31	24.0	24.0	790
JUL					
12...	1015	19	23.0	23.0	740
AUG					
08...	1045	10	23.5	25.0	730
28...	0900	5.8	22.5	24.0	710
SEP					
26...	1405	7.8	7.0	13.0	680

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

06480650 - FLANDREAU CREEK ABOVE FLANDREAU SD (LAT 44 03 45 LONG 096 29 14)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
04...	0915	12	12.0	9.0	930
NOV					
22...	1135	91	.0	-3.0	730
DEC					
21...	1600	9.1	.0	-27.0	750
JAN , 1984					
10...	1410	9.5	.0	-14.0	750
FEB					
07...	1535	5.3	.0	.0	930
MAR					
08...	1120	47	-1.5	-11.0	800
28...	1120	151	.5	1.0	340
APR					
03...	1150	297	4.0	1.0	470
MAY					
16...	1045	73	16.0	18.0	650
JUN					
13...	1620	355	23.5	26.0	500
20...	1410	2420	22.0	29.0	260
27...	1825	66	24.0	27.0	810
JUL					
12...	0825	40	22.5	22.0	730
AUG					
08...	1225	14	25.0	29.5	800
28...	1320	6.8	26.0	34.0	840
SEP					
26...	1155	10	6.5	10.0	810

06481000 - BIG SIOUX R NEAR DELL RAPIDS SD (LAT 43 47 25 LONG 096 44 42)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
24...	1225	84	10.0	14.0	820
NOV					
18...	1130	148	3.0	10.0	850
DEC					
15...	1145	152	.0	-12.0	1100
JAN , 1984					
16...	1255	66	.0	-12.0	1000
FEB					
13...	1335	78	.0	6.0	1000
MAR					
16...	1405	277	.0	-3.0	920
APR					
03...	0910	4860	4.0	.5	600
MAY					
02...	1000	1440	8.5	6.5	960
04...	1030	1410	10.0	14.0	930
18...	1040	1200	19.0	25.5	750
JUN					
14...	1000	4780	20.0	20.5	605
21...	1645	14800	21.0	21.0	460
25...	1550	9320	24.0	24.5	--
AUG					
28...	1510	229	26.5	35.0	875
SEP					
25...	1600	117	10.0	6.5	830

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

06481500 - SKUNK CR AT SIOUX FALLS SD (LAT 43 32 01 LONG 096 47 26)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	TEMPERATURE (DEG C)	TEMPERATURE, AIR (DEG C)	SPECIFIC CONDUCTANCE (UMHOS)
OCT , 1983					
05...	0920	13	12.0	10.0	940
NOV					
21...	1650	75	2.0	1.0	1150
DEC					
20...	1550	20	.0	-23.0	1150
JAN , 1984					
11...	1455	18	.0	-5.0	1200
FEB					
06...	1515	14	.0	-1.0	1200
MAR					
07...	0930	49	-2.0	-6.0	1180
27...	1540	640	.0	5.0	830
APR					
02...	1630	1180	5.0	6.5	1000
12...	1515	5740	--	--	--
14...	0930	2830	6.5	10.0	900
18...	1525	1200	12.0	15.0	1070
MAY					
16...	1605	374	18.0	27.0	1400
JUN					
14...	1820	1850	20.5	21.0	830
22...	0840	7500	20.0	23.0	520
JUL					
11...	0900	608	23.5	24.0	1170
AUG					
29...	1740	34	25.0	27.5	1040
SEP					
24...	1655	16	12.0	7.0	1000

06482020 - BIG SIOUX R AT NORTH CLIFF AVE AT SIOUX FALLS SD (LAT 43 34 01 LONG 096 42 39)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	TEMPERATURE (DEG C)	TEMPERATURE, AIR (DEG C)	SPECIFIC CONDUCTANCE (UMHOS)
OCT , 1983					
04...	1525	92	17.0	15.0	1160
NOV					
22...	0855	629	1.0	-3.0	940
DEC					
21...	0955	143	1.0	-25.0	1300
JAN , 1984					
11...	1200	99	.5	-5.0	1440
FEB					
07...	0945	70	1.0	-9.0	1500
MAR					
30...	1230	3670	--	--	700
APR					
02...	1415	7230	3.5	7.5	650
MAY					
17...	0950	1740	18.0	18.0	1100
JUN					
15...	0900	7100	20.0	20.0	640
22...	1155	21400	20.0	30.0	480
25...	0940	15200	--	--	580
28...	0900	7900	23.0	24.5	720
JUL					
11...	1135	1900	23.5	25.0	950
AUG					
29...	1230	284	24.5	24.0	1060
SEP					
25...	1145	152	11.0	--	980

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

06482610 - SPLIT ROCK CR AT CORSON SD (LAT 43 36 59 LONG 096 33 54)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
04...	1230	21	14.0	19.5	600
NOV					
21...	1550	94	2.5	2.0	750
DEC					
21...	1240	25	.0	-26.0	820
JAN , 1984					
11...	1005	24	.0	-7.0	860
FEB					
07...	1215	18	.0	.0	710
MAR					
07...	1220	107	-2.0	-7.0	610
28...	1645	2400	.5	3.0	410
30...	1510	3060	1.5	6.0	350
APR					
03...	1135	2160	4.0	2.0	390
12...	1210	4720	8.0	7.0	410
13...	1840	4030	5.0	7.0	530
20...	0800	349	11.0	11.0	760
MAY					
16...	1340	202	18.0	25.0	770
JUN					
14...	1455	2030	20.5	19.0	550
22...	1430	7260	22.0	23.0	280
25...	1230	1380	23.0	28.5	410
28...	1110	422	23.0	27.0	640
JUL					
10...	1705	156	24.0	23.5	710
AUG					
30...	0935	30	20.0	16.5	580
SEP					
25...	1320	28	10.0	7.5	630

06482848 - BEAVER CREEK AT CANTON SD (LAT 43 17 12 LONG 096 35 46)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
24...	1645	7.4	10.0	15.0	2240
NOV					
17...	1025	6.6	2.0	1.0	1800
DEC					
14...	1525	9.9	.0	-8.0	1910
JAN , 1984					
16...	1655	6.8	.0	-13.0	2060
FEB					
09...	1505	6.9	.5	5.0	2430
MAR					
16...	0915	17	.0	-7.0	1360
27...	1200	492	.5	4.5	680
30...	0930	483	2.5	6.5	780
APR					
14...	1655	834	9.0	13.0	790
MAY					
01...	1555	591	9.0	18.0	780
16...	1300	36	17.0	24.5	1800
JUN					
14...	1220	708	22.0	22.0	700
18...	1650	1300	26.5	28.0	490
20...	1325	698	--	32.0	--
22...	1635	1520	24.5	28.0	460
27...	1100	170	23.0	26.0	970
JUL					
12...	1425	26	25.0	31.0	1730
AUG					
13...	1410	8.8	29.0	36.5	2050
SEP					
06...	1515	6.0	18.5	23.5	2200

WATER QUALITY DATA, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

06485500 - BIG SIOUX R AT AKRON IA (LAT 42 49 42 LONG 096 33 45)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
25...	1140	639	8.5	16.5	830
NOV					
17...	1400	708	5.0	6.0	1000
JAN , 1984					
17...	1215	445	.0	-14.0	1170
FEB					
14...	1100	1100	1.0	8.0	650
MAR					
22...	1100	1780	2.0	6.0	970
26...	1120	7690	2.0	6.0	440
29...	1625	13200	2.5	5.0	500
APR					
04...	1105	15200	4.0	9.0	580
15...	1255	30000	9.5	14.5	640
19...	1005	12400	11.0	13.0	810
MAY					
01...	1210	8670	8.5	11.0	800
17...	1110	4670	18.0	21.0	970
JUN					
14...	0945	15000	22.0	20.0	570
19...	1500	34900	25.0	31.0	470
24...	1815	42400	24.0	29.0	460
28...	1200	18500	25.0	28.0	640
JUL					
12...	1105	4300	24.0	28.0	830
AUG					
14...	0935	1400	25.5	29.0	870
SEP					
12...	1415	706	20.0	25.0	840

06485696 - BRULE CREEK NR ELK POINT SD (LAT 42 48 32 LONG 096 41 11)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	TEMPER-ATURE (DEG C)	TEMPER-ATURE, AIR (DEG C)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)
OCT , 1983					
25...	1500	17	9.5	16.0	1090
NOV					
16...	1510	28	3.0	4.0	850
DEC					
13...	1600	24	.0	-7.0	900
JAN , 1984					
17...	1455	20	.0	-16.0	920
FEB					
09...	1125	24	.5	4.0	1190
MAR					
15...	1145	56	.0	-2.0	800
26...	1405	1270	.5	5.0	510
29...	1255	627	2.0	6.0	700
APR					
15...	1150	489	--	--	920
MAY					
16...	1045	132	15.5	25.5	1060
JUN					
13...	1650	547	24.0	29.0	660
19...	1215	853	25.0	32.0	540
JUL					
12...	0825	98	22.0	23.0	850
AUG					
13...	1655	28	29.0	31.0	910
SEP					
12...	1145	18	20.0	24.5	970

MISCELLANEOUS DISCHARGE MEASUREMENTS

The following miscellaneous discharge measurements were made in the Black Hills area. Stations are listed by latitude beginning with furthest south site.

4317231034926 - COTTONWOOD CREEK (LAT 43 17 23 LONG 103 49 26)

DATE	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	DATE	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)
JUN , 1983		SEP , 1983	
14...	0.50	07...	.40
20...	293	OCT	
20...	326	03...	1.86
JUL		NOV	
11...	.16	08...	1.56
AUG			
02...	.17		

4318151034905 - COTTONWOOD CREEK (LAT 43 18 15 LONG 103 49 05)

DATE	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)
JUN , 1983	
14...	1.02

4342431032136 - FRENCH CREEK (LAT 43 42 43 LONG 103 21 36)

DATE	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	DATE	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)
MAY , 1983		MAY , 1984	
24...	4.59	10...	25.8
JUN		JUL	
16...	.15	19...	10.3
OCT			
05...	.44		

4342441032054 - FRENCH CREEK (LAT 43 42 44 LONG 103 20 54)

DATE	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	DATE	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)
MAY , 1983		JUL , 1984	
24...	E.10	19...	7.15
MAY , 1984			
10...	21.3		

4428461035117 - SPEARFISH CREEK (LAT 44 28 46 LONG 103 51 17)

DATE	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)
APR , 1984	
18...	68.1

E Estimated.

The ground-water observation well network in South Dakota is used to monitor quantitative and at times qualitative changes in the glacial and bedrock aquifers. Federal, state, and local agencies monitor approximately 2,000 wells throughout the state. These seven wells are a sample of the South Dakota observation well network. All measurements are in feet above or below land-surface datum. Well 442112098174001 and well 453312098244401 tap glacial aquifers and are monitored with digital recorders. The other five wells are bedrock wells. Of these, well 432015103535801 is measured annually with a steel tape, well 443515103513901 is monitored by a pressure recorder, and wells 435039098263403, 431619096460202, and 454745097450401 are monitored with digital recorders.

AURORA COUNTY

435039098263403.
LOCATION.--Lat 43°50'39", long 98°26'34", in SW¼SW¼SW¼NW¼ sec.6, T.104 N., R.63 W., Hydrologic Unit 10160011, 8.5 mi north-northeast of Plankinton.
Owner: South Dakota Department of Water and Natural Resources.
AQUIFER.--Niobrara.
WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 6 in, depth 134 ft, perforated 114 to 134 ft.
DATUM.--Land-surface datum is 1,418 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of casing 2.0 ft above land-surface datum.
PERIOD OF RECORD.--April 1979 to current year.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	57.77	59.16	58.98	56.74	56.38	55.74	55.22	54.62	55.78	59.10	---	61.48
10	57.58	57.91	58.21	56.82	56.17	55.74	55.12	61.05	55.71	56.96	61.02	61.96
15	57.36	59.43	57.69	56.67	56.10	55.66	54.94	58.67	55.60	57.14	62.89	61.96
20	57.26	58.74	57.52	56.61	56.01	55.47	54.89	57.22	55.50	---	61.69	62.12
25	57.20	57.91	57.23	56.41	55.85	55.36	54.73	56.66	56.41	---	61.33	62.09
EOM	57.00	61.39	56.98	56.35	55.90	55.41	54.74	55.99	56.36	---	61.35	62.16

NOTE: Instantaneous observations are the maximum depths below land surface.

BEADLE COUNTY

442112098174001.
LOCATION.--Lat 44°21'12", long 98°17'40", in SW¼SW¼SW¼NW¼ sec.9, T.110 N., R.62 W., Hydrologic Unit 10160006, at southwest corner of city well field, 3.5 mi west of Huron.
Owner: City of Huron.
AQUIFER.--Glacial Outwash.
WELL CHARACTERISTICS.--Drilled unused public supply artesian well, diameter 12 in, depth 74 ft, perforated 38 to 74 ft.
DATUM.--Land-surface datum is 1,306.93 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of platform 2.00 ft above land-surface datum.
PERIOD OF RECORD.--February 1954 to current year.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	41.20	40.22	39.76	39.00	39.41	50.40	47.92	39.84	38.61	---	40.99	42.65
10	41.07	40.12	40.64	39.31	40.01	50.98	44.88	39.52	39.05	---	41.72	42.41
15	40.77	39.91	39.66	39.48	46.87	51.00	41.56	39.37	---	---	42.14	42.48
20	40.68	39.63	39.90	39.26	47.75	54.17	41.03	38.98	---	39.20	42.53	41.55
25	40.56	39.67	39.83	38.81	48.34	54.18	40.39	39.29	---	39.99	42.67	41.13
EOM	40.38	39.81	39.37	39.60	50.18	54.18	40.18	39.16	---	40.45	42.48	40.92

NOTE: Instantaneous observations are the maximum depths below land surface.

BROWN COUNTY

453312098244401.
LOCATION.--Lat 45°33'12", long 98°24'44", in NW¼NW¼NW¼SW¼ sec.15, T.124 N., R.63 W., Hydrologic Unit 10160004, 1.5 mi south of Ordway.
Owner: Bureau of Reclamation.
AQUIFER.--Elm.
WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 4 in, depth 38 ft, perforated 6 to 38 ft.
DATUM.--Land-surface datum is 1,304.14 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of recorder platform 3.10 ft above land-surface datum.
PERIOD OF RECORD.--August 1955 to current year.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	8.45				---	7.73	6.44	6.44	---	---	7.66	8.68
10	---				---	7.69	6.44	6.44	---	6.47	7.85	8.77
15	---				---	7.69	6.44	5.91	---	6.72	8.04	8.83
20	---				---	7.69	6.44	6.15	---	6.94	8.19	8.87
25	---				7.93	7.39	6.44	6.42	---	7.17	8.36	8.89
EOM	---				7.77	6.62	6.44	6.62	---	7.44	8.55	3.87

NOTE: Instantaneous observations are the maximum depths below land surface.

FALL RIVER COUNTY

432015103535801.
LOCATION.--Lat 43°20'15", long 103°53'58", in SW¼SW¼NE¼SE¼ sec.20, T.8 S., R.2 E., Hydrologic Unit 10120106, 5 mi northwest of Edgemont.
Owner: D. Heldman.
AQUIFER.--Lakota.
WELL CHARACTERISTICS.--Drilled artesian stock well, diameter 5 in, depth 410 ft.
DATUM.--Land-surface datum is 3,532 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of casing 0.60 ft above land-surface datum.
PERIOD OF RECORD.--September 1956 to current year.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

MAY 07, 1984 38.30

LAWRENCE COUNTY

443515103513901.
LOCATION.--Lat 44°35'15", long 103°51'39", in SE¼NE¼NW¼ sec.10, T.7 N., R.2 E., Hydrologic Unit 10120203, 4.5 mi north of Spearfish.
Owner: South Dakota Department of Water and Natural Resources.
AQUIFER.--Minnelusa.
WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 5 in, depth 1,306 ft, perforated 1,266 to 1,306 ft.
DATUM.--Land-surface datum is 3,205 ft National Geodetic Vertical Datum of 1929. Measuring point: Base of gage 2.5 ft above land-surface datum.
PERIOD OF RECORD.--April 1963 to current year.

WATER LEVEL, IN FEET ABOVE LAND SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 05, 1983	284.30	JAN 10, 1984	287.20	APR 10, 1984	282.60	JUL 10, 1984	281.50
10	286.10	15	286.10	15	280.30	15	275.70
15	286.10	20	286.10	20	280.30	20	272.20
20	284.30	25	288.40	25	276.80	25	272.20
25	286.10	31	287.20	30	276.80	31	269.90
31	286.60	FEB 05	286.10	MAY 05	281.50	AUG 05	272.20
NOV 05	289.50	10	286.10	10	279.20	10	269.30
10	287.20	15	286.10	15	281.50	15	268.20
15	288.40	20	286.10	20	281.50	20	267.60
20	287.80	25	287.20	25	280.30	25	267.60
25	288.40	29	286.10	31	279.20	31	264.20
30	286.10	MAR 05	287.20	JUN 05	280.30	SEP 05	264.70
DEC 05	287.20	10	287.20	10	281.50	10	263.00
10	288.40	15	287.20	15	281.50	15	264.20
15	286.10	20	286.10	20	281.50	20	271.60
20	286.10	25	286.10	25	283.80	25	269.90
25	286.10	31	286.10	30	282.60	30	276.80
JAN 05, 1984	286.10	APR 05	281.50	JUL 05	280.30		

NOTE: Instantaneous observations are minimum height above land surface.

LINCOLN COUNTY

431619096460202.
LOCATION.--Lat 43°16'19", long 96°46'02", in NE¼NE¼NE¼NE¼ sec.32, T.98 N., R.50 W., Hydrologic Unit 10170102, 4 mi south of Worthing.
Owner: South Dakota Department of Water and Natural Resources.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 6 in, depth 383 ft, screened 363 to 383 ft.
DATUM.--Land-surface datum is 1,320 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of recorder platform 3.0 ft above land-surface datum.
PERIOD OF RECORD.--August 1979 to current year.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	153.61	154.55	153.61	154.38	156.30	157.31	158.33	159.10	159.85		---	160.90
10	153.73	154.53	153.66	154.85	156.40	157.54	158.43	159.26	160.08		---	160.85
15	153.68	154.54	153.74	155.16	156.64	157.70	158.64	159.45	---		---	161.06
20	153.70	153.55	154.06	155.47	156.85	157.80	158.84	159.50	---		---	161.04
25	154.54	153.61	154.18	155.47	157.01	157.95	158.81	159.76	---		---	161.18
EOM	154.56	153.67	154.30	155.89	157.25	158.28	159.03	159.88	---		160.66	161.34

NOTE: Instantaneous observations are the maximum depths below land surface.

MARSHALL COUNTY

454745097450401.
LOCATION.--Lat 45°47'45", long 97°45'04", in SE¼NE¼SE¼ sec.23, T.127 N., R.58 W., Hydrologic Unit 09020105, within city limits of Britton.
Owner: City of Britton.
AQUIFER.--Dakota Sandstone.
WELL CHARACTERISTICS.--Drilled unused public supply artesian well, diameter 8 in, depth 1,060 ft.
DATUM.--Land-surface datum is 1,360 ft National Geodetic Vertical Datum of 1929. Measuring point: Top of recorder platform 2.50 ft above land-surface datum.
PERIOD OF RECORD.--July 1970 to current year.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	44.17	44.15	44.21		---	43.73	43.62	43.07	43.24	43.12	43.44	43.70
10	44.06	44.26	44.20		---	43.78	43.62	43.24	43.19	43.11	43.41	43.40
15	43.96	44.19	44.10		---	43.88	43.64	43.39	43.15	43.18	43.68	43.53
20	44.09	43.92	44.21		---	43.61	43.67	43.24	43.05	43.30	43.69	43.41
25	44.12	44.08	---		43.76	43.60	43.44	43.27	43.03	43.46	43.51	43.42
EOM	44.04	44.22	---		43.83	43.71	43.49	43.38	43.17	43.32	43.46	43.46

NOTE: Instantaneous observations are the maximum depths below land surface.

The following data are from a network of wells in northern Hughes County and southern Sully County.

HUGHES COUNTY

SITE NUMBER 442451100155501 LOCAL NUMBER 111N78W18DCBA

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
SEP 06, 1978	54.30	SEP 11, 1979	54.50	SEP 24, 1980	55.60	JUL 19, 1982	52.58
OCT 31	54.30	OCT 17	54.37	OCT 24	55.17	AUG 27	52.72
NOV 30	53.98	NOV 23	54.05	JAN 07, 1981	56.70	NOV 03	52.68
DEC 21	53.98	DEC 28	55.25	19	55.10	DEC 16	52.29
JAN 31, 1979	53.68	JAN 17, 1980	54.44	FEB 10	56.00	APR 20, 1983	51.70
FEB 20	53.73	MAR 11	54.20	APR 06	54.95	MAY 10	51.15
MAR 30	54.39	APR 01	54.38	MAY 29	51.13	31	51.24
MAY 02	54.50	MAY 27	55.40	SEP 25	55.11	DEC 07	53.65
31	54.58	JUN 30	55.65	JAN 07, 1982	55.20	JUL 25, 1984	48.49
JUN 18	54.30	JUL 15	57.25	FEB 10	54.50	SEP 06	55.18
JUL 25	54.40	25	55.75	APR 21	54.37	NOV 20	53.67
AUG 23	53.73	AUG 29	55.68	JUN 22	51.94		

SITE NUMBER 442500100154001 LOCAL NUMBER 111N78W18DACB

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
SEP 06, 1978	DRY	JAN 31, 1979	18.12	MAY 31, 1979	18.66	SEP 11, 1979	17.90
OCT 31	18.30	FEB 20	18.01	JUN 18	18.15	APR 20, 1983	DRY
NOV 30	17.89	MAR 30	18.10	JUL 25	18.00		
DEC 21	17.80	MAY 02	18.71	AUG 23	18.00		

SITE NUMBER 442500100154102 LOCAL NUMBER 111N78W18DACB2

WATER LEVELS IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAY 21, 1976	DRY	DEC 21, 1978	16.80	MAY 02, 1979	17.71	AUG 23, 1979	17.00
SEP 06, 1978	17.50	JAN 31, 1979	17.12	31	17.66	SEP 11	16.90
OCT 31	17.30	FEB 20	17.01	JUN 18	17.15		
NOV 30	16.89	MAR 30	17.10	JUL 25	17.00		

SITE NUMBER 442504100160001 LOCAL NUMBER 111N78W18DBBB

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
SEP 06, 1978	12.30	AUG 23, 1979	14.58	AUG 29, 1980	15.99	JUL 19, 1982	15.81
OCT 31	13.34	SEP 11	14.36	SEP 24	15.65	AUG 29	17.40
NOV 30	13.30	OCT 17	14.20	OCT 24	16.30	NOV 03	17.72
DEC 21	13.40	NOV 23	14.07	JAN 19, 1981	16.52	DEC 16	17.36
JAN 31, 1979	14.01	DEC 28	16.06	APR 06	17.91	APR 20, 1983	18.40
FEB 20	13.97	JAN 17, 1980	15.94	MAY 29	18.10	MAY 10	18.47
MAR 30	14.45	MAR 11	15.26	SEP 25	17.77	31	18.62
MAY 02	14.20	APR 01	15.24	JAN 07, 1982	18.21	DEC 07	17.81
31	16.12	MAY 27	15.64	FEB 10	18.05	MAR 09, 1984	16.79
JUN 18	14.73	JUN 30	15.70	APR 21	18.63	JUL 25	17.40
JUL 25	14.70	JUL 25	16.02	JUN 22	16.06	NOV 20	17.90

SITE NUMBER 442504100163201 LOCAL NUMBER 111N78W18CBBA

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
SEP 06, 1978	17.00	AUG 23, 1979	17.93	AUG 29, 1980	36.48	JUL 19, 1982	17.37
OCT 31	17.27	SEP 11	17.60	SEP 24	36.00	AUG 27	17.17
NOV 30	17.25	OCT 17	17.36	OCT 24	45.88	NOV 03	16.93
DEC 21	17.30	NOV 23	17.27	JAN 19, 1981	44.78	DEC 16	16.92
JAN 31, 1979	17.44	DEC 28	18.46	APR 06	48.95	APR 20, 1983	17.80
FEB 20	17.48	JAN 17, 1980	18.48	MAY 29	49.47	MAY 10	16.91
MAR 30	17.55	MAR 11	18.50	SEP 25	49.17	31	16.99
MAY 02	17.92	APR 01	18.46	JAN 07, 1982	49.99	DEC 07	17.05
31	17.63	MAY 27	19.30	FEB 10	48.10	MAR 09, 1984	17.48
JUN 18	17.00	JUN 30	19.44	APR 21	51.09	JUL 25	16.71
JUL 25	17.70	JUL 25	28.33	JUN 22	19.03	NOV 20	16.80

SITE NUMBER 442806100001601 LOCAL NUMBER 112N76W32BBAB

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAY 21, 1976	14.10	JAN 19, 1977	15.80	JUL 06, 1977	16.20	MAY 02, 1979	15.72
JUN 16	14.10	FEB 17	15.80	AUG 06	16.30	JUL 26	15.16
JUL 21	14.30	APR 05	14.60	OCT 20	15.60	OCT 17	15.07
AUG 24	14.20	MAY 04	15.90	OCT 31, 1978	15.10	JAN 17, 1980	14.54
SEP 22	14.20	JUN 01	16.10	MAR 30, 1979	15.19	APR 01	14.87

SITE NUMBER 442919099591201 LOCAL NUMBER 112N76W21CBCB

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAY 21, 1976	4.70	FEB 17, 1977	8.80	OCT 20, 1977	9.80	JAN 17, 1980	6.47
JUN 16	5.20	APR 05	8.30	OCT 31, 1978	7.22	APR 01	6.16
JUL 21	6.40	MAY 04	8.70	MAR 30, 1979	5.60	JUL 18	6.82
AUG 24	7.40	JUN 01	9.00	MAY 02	6.36	JAN 19, 1981	6.36
SEP 22	7.40	JUL 06	9.40	JUL 26	6.85	MAR 06	6.10
JAN 19, 1977	9.00	AUG 16	10.40	OCT 17	7.08	SEP 25	6.61

SITE NUMBER 442934099593701 LOCAL NUMBER 112N76W20ACAC

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAY 21, 1976	9.30	SEP 22, 1976	10.70	JUL 06, 1977	12.70	MAR 30, 1979	10.53
JUN 16	11.80	JAN 19, 1977	12.70	AUG 16	13.60	MAY 02	10.55
JUL 21	10.50	MAY 04	11.70	OCT 20	12.50		
AUG 24	10.40	JUN 01	12.50	OCT 31, 1978	10.12		

SITE NUMBER 443018099580301 LOCAL NUMBER 112N76W16DAAA

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAY 21, 1976	18.30	JUN 01, 1977	23.30	JAN 17, 1980	15.20	JUL 20, 1982	13.59
JUN 16	20.90	JUL 06	24.90	APR 01	14.99	OCT 04	13.50
JUL 21	21.80	AUG 16	24.60	JUL 18	17.92	DEC 16	13.25
AUG 24	21.90	OCT 20	23.10	JAN 19, 1981	16.10	APR 20, 1983	13.00
SEP 22	21.50	OCT 31, 1978	18.87	MAR 06	15.81	DEC 07	13.46
JAN 19, 1977	23.00	MAR 30, 1979	18.57	SEP 25	16.17	MAR 09, 1984	11.87
FEB 11	23.30	MAY 02	19.19	DEC 28	16.97	JUL 25	11.62
APR 05	22.80	JUL 26	14.46	APR 29, 1982	13.18	OCT 24	11.90
MAY 04	22.60	OCT 17	14.22	JUN 21	12.03		

HUGHES COUNTY--Continued

SITE NUMBER 443018099594901 LOCAL NUMBER 112N76W17DBBB

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAY 21, 1976	23.10	JUN 01, 1977	21.90	JAN 17, 1980	21.60	JUL 20, 1982	21.68
JUN 16	20.30	JUL 06	21.90	APR 01	20.75	OCT 04	21.52
JUL 20	20.70	AUG 16	22.60	JUL 18	22.09	DEC 16	21.50
AUG 24	20.80	OCT 20	22.60	JAN 19, 1981	21.42	APR 20, 1983	21.48
SEP 22	21.00	OCT 31, 1978	21.59	MAR 06	21.19	DEC 07	19.42
JAN 19, 1977	21.80	MAR 30, 1979	21.65	SEP 25	21.63	MAR 09, 1984	19.16
FEB 17	21.90	MAY 02	21.34	DEC 28	21.51	JUL 25	21.47
APR 05	21.90	JUL 26	21.61	APR 29, 1982	21.24	OCT 24	20.70
MAY 04	21.60	OCT 17	22.09	JUN 21	21.45		

SITE NUMBER 443026099592101 LOCAL NUMBER 112N76W17ADDB

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAY 21, 1976	11.45	JUN 01, 1977	14.95	JAN 17, 1980	12.24	JUL 20, 1982	9.94
JUN 16	11.75	JUL 06	15.25	APR 01	12.13	OCT 04	10.06
JUL 20	12.45	AUG 16	15.65	JUL 18	12.00	DEC 16	9.71
AUG 24	13.25	OCT 20	14.85	JAN 19, 1981	11.47	APR 20, 1983	9.85
SEP 22	13.45	OCT 31, 1978	12.38	MAR 06	11.49	DEC 07	9.94
JAN 19, 1977	14.95	MAR 30, 1979	12.38	SEP 25	12.66	MAR 09, 1984	10.10
FEB 11	15.15	MAY 02	11.65	DEC 28	12.11	JUL 25	8.47
APR 05	15.05	JUL 26	12.11	APR 29, 1982	10.00	OCT 24	9.25
MAY 04	14.75	OCT 17	12.08	JUN 21	8.61		

SITE NUMBER 443039099575901 LOCAL NUMBER 112N76W15BBBC

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAY 21, 1976	12.75	JUN 01, 1977	16.15	JAN 17, 1980	13.41	JUL 20, 1982	10.89
JUN 16	13.25	JUL 06	15.15	APR 01	13.38	OCT 04	10.81
JUL 20	13.45	AUG 16	16.65	JUL 18	13.26	DEC 16	9.53
AUG 24	13.75	OCT 20	15.65	JAN 19, 1981	13.67	APR 20, 1983	10.81
SEP 22	13.95	OCT 31, 1978	15.10	MAR 06	13.50	DEC 07	10.72
JAN 19, 1977	15.75	MAR 30, 1979	14.94	SEP 25	13.61	MAR 09, 1984	10.84
FEB 11	15.75	MAY 02	14.32	DEC 28	13.71	JUL 25	8.63
APR 05	15.95	JUL 26	14.25	APR 29, 1982	12.26	OCT 24	9.40
MAY 04	16.05	OCT 17	13.85	JUN 21	11.37		

SITE NUMBER 443039099575902 LOCAL NUMBER 112N76W15BBBC2

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAY 21, 1976	12.40	JUN 01, 1977	15.60	JAN 17, 1980	11.44	JUL 20, 1982	8.40
JUN 16	12.70	JUL 06	16.10	APR 01	12.57	OCT 04	10.01
JUL 20	13.50	AUG 16	16.50	JUL 18	10.98	DEC 16	10.98
AUG 24	14.20	OCT 20	15.20	JAN 19, 1981	11.90	APR 20, 1983	11.20
SEP 22	14.10	OCT 31, 1978	12.47	MAR 06	11.09	DEC 07	10.85
JAN 19, 1977	16.00	MAR 30, 1979	12.99	SEP 25	11.52	MAR 09, 1984	10.50
FEB 11	16.10	MAY 02	13.23	DEC 28	12.62	JUL 25	7.18
APR 05	15.20	JUL 26	9.78	APR 29, 1982	8.56	OCT 24	9.40
MAY 04	15.30	OCT 17	11.01	JUN 21	7.50		

HUGHES COUNTY--Continued

SITE NUMBER 443049099565901 LOCAL NUMBER 112N76W10DDCD

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAY 21, 1976	16.70	JUN 01, 1977	20.20	JAN 17, 1980	11.60	JUL 20, 1982	10.74
JUN 16	17.40	JUL 06	20.60	APR 01	11.52	OCT 04	10.50
JUL 20	18.30	AUG 16	21.20	JUL 18	13.81	DEC 16	10.23
AUG 24	19.30	OCT 20	20.80	JAN 19, 1981	13.16	APR 20, 1983	11.09
SEP 22	19.80	OCT 31, 1978	16.14	MAR 06	11.14	DEC 07	10.32
JAN 19, 1977	20.40	MAR 30, 1979	15.91	SEP 25	11.50	MAR 09, 1984	10.28
FEB 11	20.40	MAY 02	16.50	DEC 28	13.43	JUL 25	7.98
APR 05	19.70	JUL 26	13.04	APR 29, 1982	10.98	NOV 19	8.80
MAY 04	19.90	OCT 17	11.30	JUN 21	9.89		

SITE NUMBER 443049099585801 LOCAL NUMBER 112N76W 9CCDD

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAY 21, 1976	0.60	AUG 16, 1977	10.80	APR 01, 1980	1.20	JUL 20, 1982	1.35
JUN 16	0.00	OCT 20	7.20	JUL 18	5.98	OCT 04	1.29
JUL 21	7.10	OCT 31, 1978	1.69	JAN 19, 1981	5.32	DEC 16	1.25
AUG 24	7.60	MAR 30, 1979	1.20	MAR 06	3.81	APR 20, 1983	0.80
SEP 22	5.20	MAY 02	0.55	SEP 25	4.42	DEC 07	1.20
JAN 19, 1977	6.20	JUL 26	1.25	DEC 28	1.95	JUL 25, 1984	1.15
JUN 01	2.70	OCT 17	1.67	APR 29, 1982	1.16	NOV 20	0.70
JUL 06	4.10	JAN 17, 1980	1.03	JUN 21	1.12		

SITE NUMBER 443102099570401 LOCAL NUMBER 112N76W10DACC

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAY 21, 1976	18.90	SEP 22, 1976	22.50	MAY 04, 1977	21.10	OCT 21, 1977	23.80
JUN 16	20.30	JAN 19, 1977	21.20	JUN 01	22.80	OCT 31, 1978	17.14
JUL 20	19.60	FEB 17	21.30	JUL 06	21.90	MAR 30, 1979	16.75
AUG 24	22.00	APR 05	21.00	AUG 16	23.30		

SITE NUMBER 443102099594401 LOCAL NUMBER 112N76W 8DBCD

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAY 21, 1976	21.80	APR 05, 1977	28.00	MAR 30, 1979	22.65	APR 20, 1983	19.60
JUN 16	23.00	MAY 04	27.30	MAY 02	22.61	DEC 07	19.34
JUL 21	24.50	JUN 01	27.90	APR 29, 1982	18.96	MAR 09, 1984	16.10
AUG 24	26.10	JUL 06	28.10	JUN 21	14.12	JUL 25	14.21
SEP 22	26.80	AUG 16	25.00	JUL 20	16.00	OCT 24	12.83
JAN 19, 1977	28.70	OCT 20	28.30	OCT 04	18.34		
FEB 11	24.50	OCT 31, 1978	23.92	DEC 16	18.89		

SITE NUMBER 443108099580301 LOCAL NUMBER 112N76W 9DAAA

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAY 21, 1976	9.30	JUN 01, 1977	11.30	JAN 17, 1980	10.92	JUL 20, 1982	9.50
JUN 15	9.50	JUL 06	11.40	APR 01	10.32	OCT 04	9.57
JUL 20	9.50	AUG 16	11.30	JUL 18	10.18	DEC 16	9.72
AUG 24	9.60	OCT 20	11.40	JAN 19, 1981	10.50	APR 20, 1983	10.15
SEP 22	9.60	OCT 31, 1978	9.98	MAR 06	10.75	DEC 07	10.17
JAN 19, 1977	11.50	MAR 30, 1979	10.62	SEP 25	11.17	JUL 25, 1984	9.22
FEB 17	11.80	MAY 02	10.96	DEC 28	10.63	OCT 24	9.66
APR 05	11.50	JUL 26	9.53	APR 29, 1982	10.14		
MAY 04	11.20	OCT 17	9.62	JUN 21	9.31		

HUGHES COUNTY--Continued

SITE NUMBER 443108099585801 LOCAL NUMBER 112N76W 9CBAA

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAY 21, 1976	16.40	JUN 01, 1977	19.80	JAN 17, 1980	14.65	JUL 20, 1982	14.89
JUN 16	19.60	JUL 06	23.80	APR 01	14.40	OCT 04	13.56
JUL 21	22.70	AUG 16	26.10	JUL 18	20.90	DEC 16	11.68
AUG 24	24.80	OCT 20	21.50	JAN 19, 1981	15.06	APR 20, 1983	11.37
SEP 22	21.40	OCT 31, 1978	16.80	MAR 06	14.77	DEC 07	12.11
JAN 19, 1977	20.40	MAR 30, 1979	15.42	SEP 25	14.97	MAR 09, 1984	9.90
FEB 11	30.00	MAY 02	15.75	DEC 28	15.32	JUL 25	12.57
APR 05	19.30	JUL 26	16.10	APR 29, 1982	13.06	OCT 24	11.00
MAY 04	18.80	OCT 17	15.94	JUN 21	11.66		

SITE NUMBER 443118099591601 LOCAL NUMBER 112N76W 8ADDA

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAY 21, 1976	20.40	SEP 22, 1976	25.70	MAY 04, 1977	23.40	OCT 20, 1977	26.10
JUN 16	23.80	JAN 19, 1977	25.10	JUN 01	24.40	MAY 02, 1979	20.03
JUL 21	27.10	FEB 17	24.30	JUL 06	28.50	OCT 17	20.53
AUG 24	29.20	APR 05	23.40	AUG 06	29.50		

SITE NUMBER 443118099593901 LOCAL NUMBER 112N76W 8ACDB

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAY 21, 1976	26.90	JAN 19, 1977	33.80	JUL 06, 1977	36.10	MAY 02, 1979	27.63
JUN 16	31.30	FEB 17	33.40	AUG 06	39.20	JUL 26	28.60
JUL 21	34.70	APR 05	32.30	OCT 20	34.80	OCT 17	28.92
AUG 24	36.90	MAY 04	32.10	OCT 31, 1978	34.65		
SEP 22	34.30	JUN 01	33.10	MAR 30, 1979	28.20		

SITE NUMBER 443128099572201 LOCAL NUMBER 112N76W10ABCC

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAY 21, 1976	13.10	JUN 01, 1977	17.00	JAN 17, 1980	10.85	JUL 20, 1982	10.12
JUN 15	15.20	JUL 06	17.20	APR 01	10.80	OCT 04	10.12
JUL 20	16.00	AUG 16	19.00	JUL 18	10.97	DEC 16	10.06
AUG 24	16.60	OCT 20	16.70	JAN 19, 1981	11.49	APR 20, 1983	9.81
SEP 22	16.60	OCT 31, 1978	12.23	MAR 06	11.27	DEC 07	10.08
JAN 19, 1977	16.00	MAR 30, 1979	12.07	SEP 25	11.66	MAR 09, 1984	9.86
FEB 17	16.10	MAY 02	12.04	DEC 28	12.20	JUL 25	8.26
APR 05	15.70	JUL 26	9.65	APR 29, 1982	9.36	OCT 24	8.99
MAY 04	15.50	OCT 17	9.70	JUN 21	8.95		

SITE NUMBER 443134099575801 LOCAL NUMBER 112N76W10BBBB

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAY 21, 1976	13.05	JUN 01, 1977	17.05	JAN 17, 1980	10.65	OCT 04, 1982	10.45
JUN 15	14.25	JUL 06	16.95	APR 01	10.65	DEC 16	10.40
JUL 20	14.75	AUG 16	17.95	JUL 18	10.35	APR 20, 1983	9.99
AUG 24	14.85	OCT 20	16.85	MAR 06, 1981	11.50	DEC 07	10.45
SEP 22	15.75	OCT 31, 1978	12.50	SEP 25	11.55	MAR 09, 1984	10.15
JAN 19, 1977	16.35	MAR 30, 1979	12.15	DEC 28	11.48	JUL 25	8.49
FEB 17	15.45	MAY 02	12.82	APR 29, 1982	10.99	OCT 24	9.25
APR 05	15.65	JUL 26	9.25	JUN 21	9.31		
MAY 04	16.05	OCT 17	10.37	JUL 20	10.20		

HUGHES COUNTY--Continued

SITE NUMBER 443141099562701 LOCAL NUMBER 112N76W 2CDCC

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAY 21, 1976	14.80	JUN 01, 1977	20.80	JAN 17, 1980	10.60	JUL 20, 1982	11.05
JUN 15	15.30	JUL 06	21.00	APR 01	10.16	OCT 04	11.76
JUL 21	15.90	AUG 16	20.90	JUL 18	10.00	DEC 16	11.69
AUG 24	16.20	OCT 21	18.10	JAN 19, 1981	11.79	APR 20, 1983	11.32
SEP 22	16.20	OCT 31, 1978	12.90	MAR 06	11.00	DEC 07	13.90
JAN 19, 1977	18.20	MAR 30, 1979	13.06	SEP 25	13.75	MAR 09, 1984	14.10
FEB 17	18.50	MAY 02	13.53	DEC 28	13.75	JUL 25	9.77
APR 05	20.80	JUL 26	8.72	APR 29, 1982	9.40	OCT 24	12.10
MAY 04	20.80	OCT 17	9.80	JUN 21	9.40		

SITE NUMBER 443142099472901 LOCAL NUMBER 112N75W 1DCDC

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAY 21, 1976	7.95	JUN 01, 1977	9.45	JAN 17, 1980	7.05	JUL 20, 1982	4.65
JUN 15	7.75	JUL 06	8.85	APR 01	6.97	OCT 04	4.95
AUG 24	7.45	AUG 16	8.65	JUL 18	6.12	DEC 16	3.65
26	7.45	OCT 21	9.55	JAN 19, 1981	6.98	APR 20, 1983	8.65
SEP 22	7.65	OCT 31, 1978	7.14	MAR 06	2.19	DEC 07	6.34
JAN 19, 1977	9.15	MAR 30, 1979	9.31	SEP 25	4.45	MAR 09, 1984	6.85
FEB 17	9.35	MAY 02	9.31	DEC 28	5.49	JUL 25	4.05
APR 05	10.55	JUL 26	3.17	APR 29, 1982	2.71	OCT 24	5.80
MAY 04	9.55	OCT 17	5.35	JUN 21	3.05		

SITE NUMBER 443157099565001 LOCAL NUMBER 112N76W 3DADA

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAY 21, 1976	18.65	JUN 01, 1977	20.55	JAN 19, 1980	20.20	OCT 04, 1982	16.70
JUN 16	18.85	JUL 06	20.75	APR 01	19.45	DEC 16	17.71
JUL 20	17.75	AUG 16	20.65	JUL 18	19.39	APR 20, 1983	20.68
AUG 24	18.15	OCT 20	20.55	MAR 06, 1981	20.24	DEC 07	18.60
SEP 22	18.75	OCT 31, 1978	20.23	APR 29	13.83	MAR 09, 1984	11.92
JAN 19, 1977	20.55	MAY 02, 1979	20.28	SEP 25	20.45	JUL 25	13.43
FEB 17	20.65	JUL 26	17.47	DEC 28	20.35	OCT 24	16.25
APR 05	20.55	OCT 17	17.14	JUN 21, 1982	13.17		
MAY 04	20.55	JAN 17, 1980	19.13	JUL 20	15.54		

SITE NUMBER 443226099550501 LOCAL NUMBER 112N76W 1BAAB

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAY 21, 1976	19.90	JUL 06, 1977	19.90	APR 01, 1980	11.15	OCT 04, 1982	12.58
JUN 15	16.90	AUG 16	20.20	JUL 18	12.47	DEC 16	13.26
JUL 20	17.30	OCT 20	18.70	JAN 19, 1981	13.96	APR 20, 1983	13.79
AUG 24	17.40	OCT 31, 1978	18.51	MAR 06	14.41	DEC 07	10.90
SEP 22	17.10	MAR 30, 1979	17.28	SEP 25	15.40	MAR 09, 1984	12.66
JAN 19, 1977	18.90	MAY 02	18.13	DEC 28	14.91	JUL 25	9.12
APR 05	19.30	JUL 26	14.07	APR 29, 1982	15.43	OCT 24	9.80
MAY 04	18.80	OCT 17	11.07	JUN 21	14.13		
JUN 01	19.70	JAN 17, 1980	11.00	JUL 20	12.20		

SITE NUMBER 443226099560401 LOCAL NUMBER 112N76W 2ABBA

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAY 21, 1976	4.90	JUN 01, 1977	6.40	JAN 17, 1980	5.89	JUL 20, 1982	5.69
JUN 16	11.50	JUL 06	6.70	APR 01	5.88	OCT 04	5.80
JUL 20	12.30	AUG 16	7.00	JUL 18	6.13	DEC 16	5.60
AUG 24	12.90	OCT 20	6.80	JAN 19, 1981	5.92	APR 20, 1983	5.60
SEP 22	13.00	OCT 31, 1978	6.20	MAR 06	5.73	DEC 07	5.62
JAN 19, 1977	6.60	MAR 30, 1979	5.99	SEP 25	6.06	MAR 09, 1984	4.77
FEB 17	6.60	MAY 20	5.90	DEC 28	5.94	JUL 25	5.18
APR 05	6.10	JUL 26	5.70	APR 29, 1982	5.60	NOV 19	5.50
MAY 04	6.10	OCT 17	6.02	JUN 21	5.35		

SITE NUMBER 443226099560501 LOCAL NUMBER 112N76W 2ABBB

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAY 21, 1976	3.05	MAY 04, 1977	5.95	JUL 26, 1979	0.00	APR 29, 1982	2.14
JUN 15	4.05	JUN 01	6.35	OCT 17	1.79	JUN 21	0.80
JUL 20	5.25	JUL 06	7.35	JAN 17, 1980	4.45	JUL 20	0.98
AUG 24	6.15	AUG 16	7.55	APR 01	4.30	OCT 04	1.00
SEP 22	6.75	OCT 20	8.85	JAN 19, 1981	6.21	APR 20, 1983	DRY
JAN 19, 1977	8.95	OCT 31, 1978	3.54	MAR 06	6.28	DEC 07	5.35
FEB 17	9.25	MAR 30, 1979	5.93	SEP 25	6.47	JUL 25, 1984	1.73
APR 05	7.55	MAY 02	2.99	DEC 28	6.84	OCT 24	1.35

SITE NUMBER 443226099563701 LOCAL NUMBER 112N76W 2BBAB

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAY 21, 1976	5.30	JUN 01, 1977	7.60	JAN 17, 1980	6.27	JUL 20, 1982	6.97
JUN 15	6.10	JUL 06	8.60	APR 01	6.84	OCT 04	7.22
JUL 20	7.00	AUG 16	9.60	JUL 18	5.20	DEC 16	7.23
AUG 24	7.30	OCT 20	9.30	JAN 19, 1981	9.00	APR 20, 1983	5.49
SEP 22	7.80	OCT 31, 1978	6.06	MAR 06	9.20	DEC 07	7.42
JAN 19, 1977	11.00	MAR 30, 1979	8.55	SEP 25	7.58	MAR 09, 1984	7.70
FEB 17	11.40	MAY 02	6.13	DEC 28	8.93	JUL 25	2.67
APR 05	11.20	JUL 26	1.35	APR 29, 1982	3.39	OCT 24	6.20
MAY 04	6.10	OCT 17	5.60	JUN 21	1.74		

SITE NUMBER 443226099564601 LOCAL NUMBER 112N76W 2BBBB

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAY 21, 1976	9.90	JUN 01, 1977	13.50	JAN 17, 1980	8.28	JUL 20, 1982	7.85
JUN 16	10.60	JUL 06	13.90	APR 01	8.32	OCT 04	8.56
JUL 20	11.40	AUG 16	14.50	JUL 18	8.90	DEC 16	7.27
AUG 24	12.00	OCT 20	13.50	JAN 19, 1981	8.90	APR 20, 1983	7.00
SEP 22	12.10	OCT 31, 1978	10.61	MAR 06	8.91	DEC 07	7.04
JAN 19, 1977	12.50	MAR 30, 1979	10.29	SEP 25	10.90	MAR 09, 1984	7.05
FEB 17	12.90	MAY 02	9.97	DEC 28	9.57	JUL 25	5.22
APR 05	13.10	JUL 26	8.69	APR 29, 1982	8.03	OCT 24	5.90
MAY 04	13.10	OCT 17	7.50	JUN 21	7.10		

SITE NUMBER 443255099472401 LOCAL NUMBER 113N76W35CCDC

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAY 21, 1976	39.75	JUL 06, 1977	43.35	JAN 17, 1980	38.98	JUL 20, 1982	36.94
JUN 16	40.25	AUG 16	43.55	APR 01	37.63	OCT 04	36.85
JUL 20	40.95	OCT 20	43.15	JUL 18	38.15	DEC 16	36.71
AUG 24	41.65	OCT 31, 1978	39.98	JAN 19, 1981	38.44	APR 20, 1983	38.35
SEP 22	41.75	MAR 30, 1979	39.62	MAR 06	38.45	DEC 07	38.35
APR 05, 1977	43.05	MAY 02	40.50	SEP 25	40.60	MAR 09, 1984	36.53
MAY 04	42.75	JUL 26	38.90	APR 29, 1982	39.46	JUL 25	34.63
JUN 01	43.05	OCT 17	37.95	JUN 21	37.19	OCT 24	35.35

SULLY COUNTY

SITE NUMBER 443340099550801 LOCAL NUMBER 113N76W31BB3B

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAY 21, 1976	5.35	AUG 16, 1977	8.25	APR 01, 1980	6.10	JUL 20, 1982	5.59
JUN 15	5.65	OCT 21	7.85	JUL 18	4.73	OCT 04	4.83
JUL 20	5.85	OCT 31, 1978	7.39	JAN 19, 1981	6.50	DEC 16	5.56
SEP 22	6.15	MAR 30, 1979	7.05	MAR 06	6.32	APR 20, 1983	5.50
APR 05, 1977	7.85	MAY 02	6.63	SEP 25	6.71	DEC 07	5.28
MAY 04	7.95	JUL 26	6.41	DEC 28	6.62	MAR 09, 1984	7.10
JUN 01	8.05	OCT 17	6.55	APR 29, 1982	5.97	JUL 25	4.30
JUL 06	8.05	JAN 17, 1980	6.33	JUN 21	5.44	OCT 24	4.40

SITE NUMBER 443341099562001 LOCAL NUMBER 113N76W36BBBB

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAY 21, 1976	11.90	JAN 19, 1977	14.10	JUN 01, 1977	14.00	OCT 31, 1978	9.83
JUN 15	12.00	FEB 17	14.50	JUL 06	14.00	MAR 30, 1979	11.75
JUL 20	12.50	APR 05	13.60	AUG 16	14.40	MAY 02	10.36
SEP 22	13.20	MAY 04	13.60	OCT 20	17.80	JUL 26	6.15

SITE NUMBER 443433099551201 LOCAL NUMBER 113N76W25AAAA

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAY 21, 1976	77.20	JUN 01, 1977	79.60	APR 01, 1980	81.35	DEC 16, 1982	54.86
JUN 15	77.10	JUL 06	79.80	JUL 18	81.37	APR 20, 1983	60.90
JUL 20	77.50	AUG 16	80.00	JAN 19, 1981	81.03	DEC 07	46.81
AUG 24	78.00	OCT 21	79.40	MAR 06	80.91	MAR 09, 1984	24.18
SEP 22	78.20	OCT 31, 1978	81.22	SEP 25	80.96	JUL 25	38.98
JAN 19, 1977	79.50	MAR 30, 1979	81.23	APR 29, 1982	81.16	NOV 20	38.60
FEB 17	80.30	MAY 02	81.90	JUN 21	77.94		
APR 05	79.40	JUL 26	81.74	JUL 20	80.97		
MAY 04	79.40	OCT 17	81.94	OCT 04	DRY		

SITE NUMBER 443439099535901 LOCAL NUMBER 113N75W19DDDD

WATER LEVELS, IN FEET BELOW LAND SURFACE

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAY 21, 1976	20.00	JUN 01, 1977	21.80	OCT 17, 1979	17.16	JUN 21, 1982	15.87
JUN 15	21.70	JUL 06	22.10	JAN 17, 1980	16.19	JUL 20	16.18
JUL 20	24.10	AUG 16	25.40	APR 01	15.97	OCT 04	16.71
AUG 24	25.20	OCT 21	25.40	JUL 18	20.88	DEC 16	16.05
SEP 22	25.50	OCT 31, 1978	28.59	JAN 19, 1981	18.12	APR 20, 1983	15.66
JAN 19, 1977	23.20	MAR 30, 1979	16.84	MAR 06	17.18	JUL 25, 1984	14.56
APR 05	22.10	MAY 02	16.91	SEP 25	17.77	NOV 19	14.85
MAY 04	21.60	JUL 26	14.18	APR 29, 1982	16.29		

The following data are from a well in northwest Campbell County.

CAMPBELL COUNTY

SITE NUMBER 455340100164701 LOCAL NUMBER 128N78W21ADBB

WATER LEVELS, IN FEET BELOW LAND SURFACE DATUM

DATE	WATER LEVEL
MAY 18, 1966	42.22
19	42.01
24	42.38
JUN 16	43.91
21	44.58
JUL 20	47.17
26	46.59
SEP 23	47.96
OCT 24	48.56
NOV 29	46.88
DEC 20	46.55
JAN 25, 1967	45.96
FEB 27	44.65
MAR 22	43.51
APR 26	41.00
27	40.93
MAY 25	42.95
JUL 20	46.47
AUG 22	48.90
OCT 04	40.06
NOV 22	36.31
DEC 13	35.12
JAN 04, 1968	35.81
24	33.90
FEB 14	33.26
MAR 06	32.58
APR 09	31.94
MAY 08	31.62
JUN 04	37.28
JUL 02	33.00
30	36.06
SEP 05	38.46
OCT 16	43.50
NOV 06	38.41
DEC 18	38.50
JAN 08, 1969	37.28
FEB 19	37.25
MAR 11	37.04
APR 22	29.28
JUN 03	30.30
JUL 05	30.65
AUG 05	31.15
SEP 17	33.67
OCT 07	37.39
NOV 18	32.84
DEC 09	32.77
JAN 20, 1970	32.21
FEB 10	32.17
MAR 02	31.84
APR 07	32.12
MAY 20	30.49
SEP 02	36.53
OCT 13	33.55
NOV 04	33.29
DEC 17	31.56
JAN 06, 1971	32.85
FEB 17	32.12
MAR 10	31.15
MAY 19	27.34
OCT 13	31.42
NOV 09	32.77
DEC 21	33.12
MAR 14, 1972	33.20
APR 20	31.11
JUN 28	28.34
SEP 20	31.82
OCT 25	32.19
NOV 22	32.97
DEC 20	34.38
JAN 17, 1973	34.34
FEB 22	33.38
APR 12	31.25
MAY 02	30.97
30	31.73
OCT 03	37.01
NOV 19	35.57
DEC 17	35.34
JAN 08, 1974	34.15
FEB 04	33.50
MAR 04	32.50
APR 08	31.45
MAY 07	31.20
JUN 03	32.85
JUL 08	41.20
OCT 01	38.48
29	37.28
NOV 25	36.29
DEC 17	35.79
JAN 13, 1975	35.01
FEB 10	34.88
MAR 10	33.83
APR 28	31.37
MAY 19,1975	31.05
JUN 10	30.26
JUL 07	31.34
AUG 04	37.55
SEP 02	31.69
OCT 01	31.04
28	31.14
NOV 25	32.26
DEC 23	32.82
MAR 17, 1976	32.43
APR 12	32.34
MAY 11	32.32
SEP 01	35.82
30	37.50
OCT 28	38.15
NOV 23	36.30
DEC 22	36.19
JAN 18, 1977	35.76
FEB 16	34.55
MAR 16	33.14
APR 13	33.12
MAY 10	35.58
JUN 08	35.76
JUL 06	44.35
AUG 03	53.77
SEP 28	44.82
OCT 26	44.63
DEC 22	43.82
JAN 19, 1978	43.40
FEB 21	41.59
MAR 25	38.57
MAY 10	32.70
JUN 06	31.80
JUL 05	31.69
AUG 29	37.04
SEP 27	37.06
OCT 16	36.36
NOV 06	36.45
DEC 06	36.47
JAN 11, 1979	36.67
FEB 07	35.90
MAR 09	35.40
APR 04	34.19
MAY 09	31.50
JUN 07	32.15
JUN 27, 1979	33.82
AUG 01	37.27
29	39.08
SEP 26	40.03
OCT 25	39.00
NOV 21	37.45
DEC 20	37.50
JAN 16, 1980	37.04
FEB 14	37.04
MAY 06	39.39
JUN 03	42.20
JUL 01	45.70
AUG 26	53.06
SEP 15	49.38
OCT 14	48.12
NOV 12	32.38
JAN 06, 1981	44.85
MAR 10	42.91
APR 08	42.10
MAY 05	45.44
JUN 03	47.49
30	50.95
AUG 26	48.82
SEP 28	50.70
NOV 17	49.64
JAN 05, 1982	39.88
MAR 02	36.97
APR 28	19.50
MAY 26	31.34
JUN 23	32.42
JUL 20	36.47
AUG 18	42.74
SEP 01	44.40
NOV 01	44.71
DEC 08	44.10
APR 05, 1983	17.30
MAY 03	27.30
JUN 27	31.74
JUL 26	33.54
OCT 04	38.48
APR 30, 1984	12.90
MAY 21	23.08
JUN 19	26.46
AUG 12	34.35
NOV 29	37.96

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FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI). This report contains both the inch-pound and SI unit equivalents in the station manuscript descriptions.

Multiply inch-pound units	By	To obtain SI units
	Length	
inches (in)	2.54x10^{1}	millimeters (mm)
	2.54x10^{-2}	meters (m)
feet (ft)	3.048x10^{-1}	meters (m)
miles (mi)	1.609x10^{0}	kilometers (km)
	Area	
acres	4.047x10^{3}	square meters (m^2)
	4.047x10^{-1}	square hectometers (hm^2)
	4.047x10^{-3}	square kilometers (km^2)
square miles (mi^2)	2.590x10^{0}	square kilometers (km^2)
	Volume	
gallons (gal)	3.785x10^{0}	liters (L)
	3.785x10^{0}	cubic decimeters (dm^3)
	3.785x10^{-3}	cubic meters (m^3)
million gallons	3.785x10^{3}	cubic meters (m^3)
	3.785x10^{-3}	cubic hectometers (hm^3)
cubic feet (ft^3)	2.832x10^{1}	cubic decimeters (dm^3)
	2.832x10^{-2}	cubic meters (m^3)
cfs-days	2.447x10^{3}	cubic meters (m^3)
	2.447x10^{-3}	cubic hectometers (hm^3)
acre-feet (acre-ft)	1.233x10^{3}	cubic meters (m^3)
	1.233x10^{-3}	cubic hectometers (hm^3)
	1.233x10^{-6}	cubic kilometers (km^3)
	Flow	
cubic feet per second (ft^3/s)	2.832x10^{1}	liters per second (L/s)
	2.832x10^{1}	cubic decimeters per second (dm^3/s)
	2.832x10^{-2}	cubic meters per second (m^3/s)
gallons per minute (gal/min)	6.309x10^{-2}	liters per second (L/s)
	6.309x10^{-2}	cubic decimeters per second (dm^3/s)
	6.309x10^{-5}	cubic meters per second (m^3/s)
million gallons per day	4.381x10^{1}	cubic decimeters per second (dm^3/s)
	4.381x10^{-2}	cubic meters per second (m^3/s)
	Mass	
tons (short)	9.072x10^{-1}	megagrams (Mg) or metric tons